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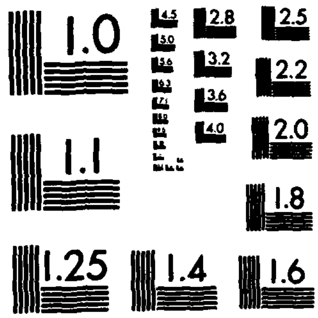

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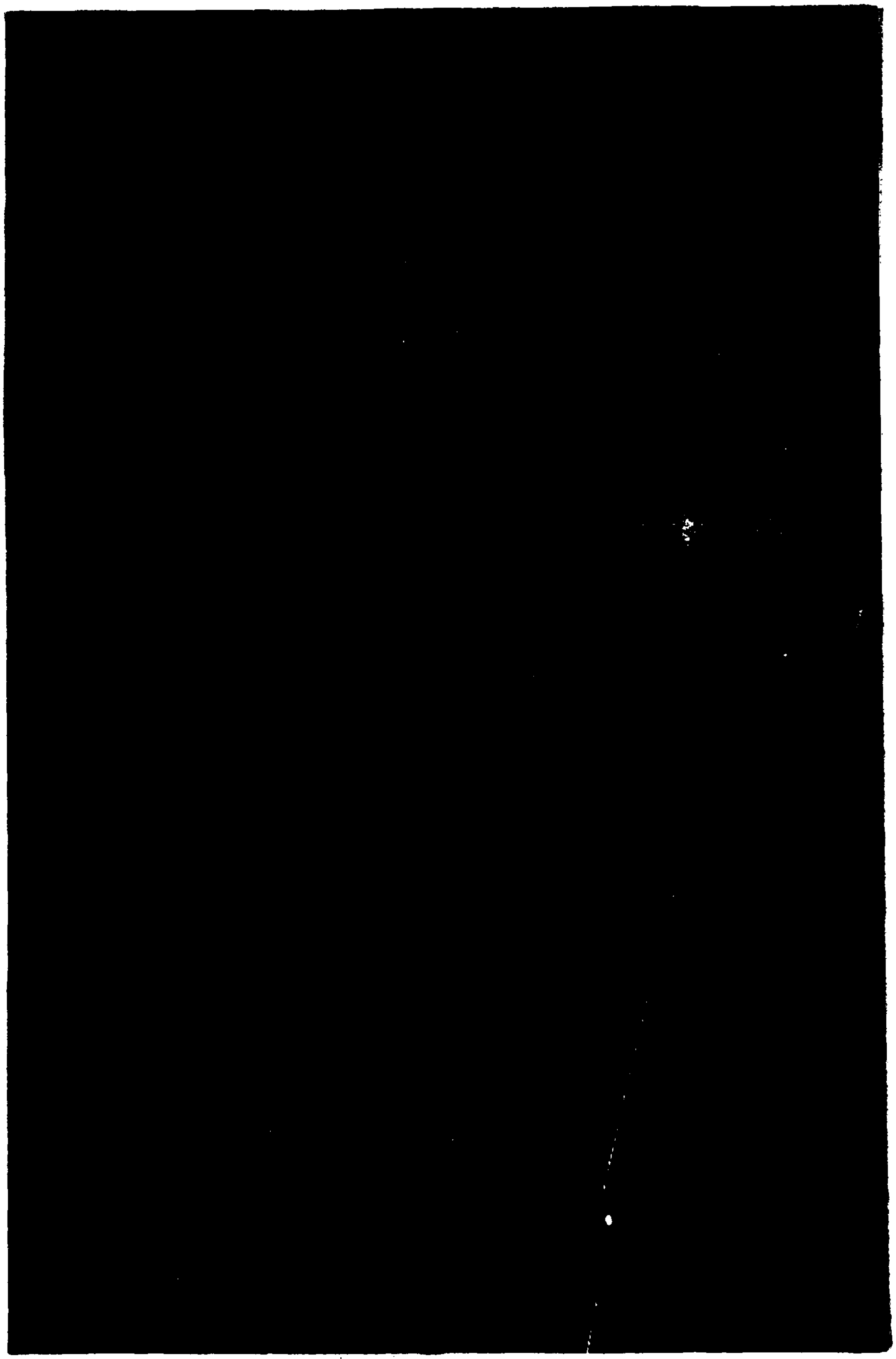

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This report examines probable changes in Soviet economic policies toward Eastern Europe during the next decade. It studies the issue of Soviet economic subsidies to Eastern Europe and explores several hypotheses that could explain why they have been granted. Finally, it discusses the implications of increasing economic stringency in the Soviet Union for Soviet willingness to subsidize Eastern Europe, and the repercussions of a decline in subsidies for East European economies. The study concludes that the Soviet Union will continue to use an awkward, expensive system of trade within the Council for Mutual Economic Assistance to buttress its important strategic, ideological, bureaucratic, and political stakes in the region.

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The Soviet Economic Dilemma of Eastern Europe

Keith Crane

May 1986

A Project AIR FORCE report prepared for the United States Air Force

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PREFACE

This report examines probable changes in Soviet economic policies toward Eastern Europe during the next decade. It studies the issue of Soviet economic subsidies to Eastern Europe and explores several hypotheses that could explain why they have been granted. Finally, it discusses the implications of increasing economic stringency in the Soviet Union for Soviet willingness to subsidize Eastern Europe, and the repercussions of a decline in subsidies for East European economies.

The report was prepared as a concept-development effort under the National Security Strategies Program of Project AIR FORCE. It is intended to supplement past Rand work on Soviet bloc economic affairs. It should be of interest to Air Force intelligence and plans officers concerned with Warsaw Pact military-economic issues.

SUMMARY

The primary source of Soviet influence in Eastern Europe has been military might, but in recent years economic policies have been an important control mechanism. These policies, which include trade agreements, credits, joint investment projects, and specialization agreements, have become very expensive. Estimates of Soviet trade and credit subsidies to Eastern Europe by Western scholars run many billions of dollars.

Why then have the Soviets been willing to accept these opportunity costs? During a period of increasing economic stringency in the Soviet Union, how will Soviet leaders resolve the dilemma of reducing subsidies without exacerbating East European economic and political problems?

This study concludes that the Soviet Union continues to use an awkward, expensive system of trade within the Council for Mutual Economic Assistance (CMEA) to buttress its important strategic, ideological, bureaucratic, and political stakes in the region. Soviet acquiescence to unfavorable terms of trade is due to CMEA pricing mechanisms and the Soviet desire to forestall domestic unrest in Eastern Europe with the resulting military and economic costs of stamping it out.

The Soviets were willing to accept unfavorable terms of trade with Eastern Europe because the region's economic performance has been so poor and Soviet windfall gains from rising oil prices on Western markets in the 1970s reduced pressure to improve terms of trade with Eastern Europe quickly. Eastern Europe's poor economic record has been due to problems in conserving energy, worsening ruble terms of trade, overinvestment, the hard currency debt crisis, and problems in adopting and diffusing new technologies.

At times Soviet policies have been counterproductive in terms of assisting Eastern Europe to surmount these problems. On the one hand, lenient Soviet policies on pricing have cushioned the shock of higher relative energy prices experienced by the rest of the world. But on the other hand, by forestalling increases in energy export prices, the Soviet Union made the production of energy-intensive products appear more profitable, and investments in energy-intensive industries appear more attractive, than they otherwise would have been. Soviet demands for investment in the Orenberg pipeline and other CMEA target programs exacerbated demands for investment goods in the Bloc, increasing the pressures on domestic supply created by the investment boom.

Soviet policies also apparently failed to diffuse popular unrest in the Bloc in the late 1970s—a primary goal.

Because of the limited effectiveness of past policies and the growth slowdown within the Soviet Union itself, at the 1984 CMEA summit meeting the Soviet leadership announced it wants a change in its economic relations with Eastern Europe. They set down four goals:

- A reduction in East European trade deficits with the Soviet Union.
- Continued improvement in Soviet terms of trade, especially from better quality imports for Soviet exports of raw materials.
- Increased East European participation in the development of Soviet natural resources.
- Restructuring the East European economies so that they are better attuned to Soviet needs.

The Soviets have also put the East Europeans on notice that future supplies of raw materials and energy will depend on Soviet domestic demands and the availability of supplies.

Soviet potential for achieving these goals is limited. They will probably be able to force Eastern Europe to close the trade deficits. Further hardening of Soviet-East European terms of trade is unlikely, unless world market prices of oil rise, because the Soviets are unwilling to change the price-setting system within the CMEA. The system biases manufactured goods prices upward, thereby leaving the Soviets with disadvantageous terms of trade. Neither increased East European exports of raw materials or high quality manufactures to the Soviets nor more investment in the Soviet Union is likely because of East European capacity constraints and competition from domestic demand.

Slow progress in energy conservation, significant hard currency debt service obligations, and low levels of factor productivity coupled with Soviet pressures to close trade deficits promise a difficult decade to the East Europeans. Three policy options for dealing with these problems are redirecting trade toward the Soviet Union and the CMEA, reforming the economic system, and increasing the share of investment in utilized national income.

None of the three policies offers much promise. Difficulties in obtaining increased imports of intermediate goods from other countries in the CMEA coupled with continued large debt service payments on hard currency loans imply pressure on East European governments to seek more, not less, East-West trade. Reform has great potential for improving productivity and export performance, but Bloc leaderships seem unwilling or unable to implement coherent reforms, except in the

case of Hungary. Present levels of hard currency loans, the need to increase exports to the Soviet Union, and domestic demand for higher standards of living place sharp limits on Eastern Europe's ability to pursue growth through another investment boom. Slow growth and ad hoc measures to increase East-West trade appear to be the order of the day in the 1980s.

The Soviet dilemma is unlikely to go away. The Soviets may well succeed in reducing the economic costs of supporting Eastern Europe by pushing these countries to pay their ruble debts. Trade subsidies may also fall as the world market price of oil declines. But the Soviets show no signs of refusing to assist regimes with internal political problems. They will probably continue to be willing to incur large economic costs, if that is necessary for preserving political control.

Present Soviet economic problems and the desire to reduce expenditures on Eastern Europe may provide East European leaders with a great deal of leeway in economic policymaking during the coming decade. The Soviets' own supply problems will prevent them from increasing exports to Eastern Europe or insisting on a decline in trade between Eastern Europe and the West. Despite some warnings by Soviet leaders concerning economic reforms in Eastern Europe, the Soviets appear more intent on introducing economic changes in their own country than imposing their own model on Eastern Europe. Whether the East European leaderships take advantage of this freedom to maneuver is, however, an open question.

ACKNOWLEDGMENTS

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TABLES

I. INTRODUCTION

The Soviet Union faces several dilemmas in choosing its policy goals for its relations with its East European allies. It wishes to retain political control over Eastern Europe, yet foster popular support for local regimes. It would like to use Eastern Europe as a security buffer and for military support, as an example pointing to the superiority of its ideology and politico-economic system, and for political support in international forums, yet it simultaneously wishes to maintain tight control.[1] It also faces the economic dilemma of wishing to increase its gains from trade with Eastern Europe, yet prevent further deterioration in the region's economic situation.

The primary source of Soviet influence in Eastern Europe has been military might, the ultimate guarantor that Eastern Europe will remain a Soviet security buffer, but that is an unwieldy instrument for pursuing other Soviet objectives. The traditional political and economic instruments of foreign policy have therefore dominated in recent years. Economic policies, exercised within bilateral relations and under the auspices of the Council for Mutual Economic Assistance (CMEA), have been an important mechanism for making Eastern Europe dependent on Soviet markets and Soviet sources of supply. These policies include trade agreements, credits, joint investment projects, target programs (a way of inducing specialization and thereby, it is hoped, increasing gains from trade), and a plethora of mechanisms for transferring technologies. They have been used to weave a tight web of economic dependence on the Soviet Union.

Unfortunately for the Soviets, these policies have been only partly successful. They have made Eastern Europe economically dependent on the Soviet Union. The Soviet Union is the primary export market for all the East European countries. It is also the primary supplier of raw materials and energy, especially oil and gas. Yet these policies have failed to produce an alliance that is politically stable, economically dynamic, and militarily strong. The imposition of a Soviet type of system in Eastern Europe has resulted in economies that are slow to adapt to new conditions. Although these systems may have generated satisfactory growth in output, they function inefficiently: They use far more inputs (capital, labor, raw materials, and energy) to generate a unit of output than do Western, and even many Third World,

[1]For a more detailed explication of the benefits the Soviets desire from control of Eastern Europe, see Brown and Johnson, 1984; Terry, 1984.

economies. Unsatisfactory economic performance has led to domestic discontent and political instability and limited East European military expenditures. Consequently, although Eastern Europe is now closely tied to the Soviet economy, its value to the Soviet Union is much less than had Eastern Europe performed as well as Western Europe.

Not only have Soviet benefits from Eastern Europe probably been less than the Soviets had hoped, the Soviet Union has paid a high price for these benefits in recent years. The East Europeans frequently state they are eager to engage in trade with the West on "mutually beneficial" terms. With the Soviet Union they seem to drop the adjective "mutually." The Soviets have given the East Europeans more favorable terms of trade than those prevailing on world markets. One estimate of the opportunity cost of this favorable treatment runs 110 billion 1984 dollars for 1970–1984, although this may be excessive.[2] The Soviets have also provided Eastern Europe with trade credits of roughly 14 billion rubles since the mid-1970s, during a period when resource constraints on the Soviet economy have been tightening because of slower rates of economic growth (Table 1).

Given the magnitude of these estimates, why have the Soviets treated Eastern Europe so generously over the past decade, and are they likely to continue to do so? If not, what are the implications for the countries of Eastern Europe of a reduction in assistance, and what policies can the leaderships adopt to cope? How can Soviet leaders resolve the dilemma of reducing Soviet assistance without exacerbating East European economic and political problems?

This report provides possible answers to these questions. It presents measures of the costs of current Soviet economic policies with regard to Eastern Europe and discusses the methodology used to compute them. This is followed by a discussion of why the Soviets have adopted their present economic policies toward Eastern Europe. The report then assesses Soviet economic policy options for dealing with Eastern Europe and their implications for the East European economies. It concludes with an analysis of three alternatives open to the East European governments for coping with potential Soviet policy changes: restructuring trade toward the Soviet Union, economic reform, and increasing investment.

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[2]Marrese and Vanous, 1985.

Table 1

OUTSTANDING SOVIET RUBLE LOANS TO EASTERN EUROPE
(Millions of rubles)

Year	Bulgaria	Czecho-slovakia	East Germany	Hungary	Poland	Romania	Total
1971	NA	NA	NA	NA	662.5	NA	NA
1972	NA	NA	NA	NA	473.6	NA	NA
1973	NA	NA	NA	NA	363.3	NA	NA
1974	52.9	NA	13.9	NA	456.1	NA	NA
1975	181.3	127.8	351.1	41.7	427.5	NA	NA
1976	269.2	225.5	789.7	222.7	692.7	NA	NA
1977	433.3	469.0	1384.6	603.0	1016.5	138.7	4045.3
1978	580.3	412.4	1655.4	806.3	866.1	141.1	4461.7
1979	719.3	591.9	1954.9	993.5	868.1	258.6	5386.4
1980	940.6	704.1	2501.7	1397.4	1440.1	389.6	7373.6
1981	1618.2	981.6	2873.2	1641.7	3125.0	536.5	10776.3
1982	2214.7	1297.2	3516.6	1909.3	3747.1	282.2	12967.0
1983	2672.2	1748.4	3718.7	2376.1	3850.0	266.0	14631.4
1984	3188.6	2322.7	3832.9	2842.1[a]	4876.4	NA	NA

SOURCES: Bulgarian, Czechoslovakian and East German Debt—Cumulative trade deficits with the Soviet Union (*Vneshniaia Torgovlia SSSR: statisticheskii sbornik*, various years).

Hungary—Fontenay, 1982, p. 57; and *Quarterly Review*, National Bank of Hungary, various issues.

Poland—"Bilans platniczy Polski w latach 1971-1981," *Finanse*, June 1982, p. 57; and *Rocznik Statystyczny*, 1984.

Romania—*Economic Memorandum*, Romanian government.

[a]First three quarters of 1984 only.

II. THE COSTS OF SOVIET FOREIGN ECONOMIC POLICIES TOWARD EASTERN EUROPE

Like all countries, the Soviet Union engages in trade to improve its material well-being. Goods in which the Soviet Union has a comparative advantage, such as lumber and oil, are exchanged for goods it finds relatively more expensive to produce. Also, like most other countries, the Soviet Union uses economic policies to pursue noneconomic goals. Soviet officials claim that trade and economic cooperation "strengthen the material basis of detente" with Western countries and explicitly endorse the creation of what they see as politically useful "economic complementarities" between East and West. The Soviet Union also uses economic leverage to exert pressure on other countries. For example, the Soviets totally embargoed trade with Yugoslavia after falling out with Tito and halted economic aid to China after the ideological split with the Chinese leadership. They also provide grants and low-interest long-term loans to Vietnam and Cuba to foster allegiance to the Soviet Union.

The Soviet Union's economic relationship with Eastern Europe is more complex than with any other region of the world. The potential for using economic policies to pursue political or ideological goals is correspondingly greater. Although all these policies entail costs, those involving intra-CMEA terms of trade, bilateral trade balances, and joint investment in the Soviet Union seem to be among the largest or most readily quantifiable. Estimates of costs of policies in these three areas are assessed below and compared with other transfer payments to other areas of the world.

TRADE SUBSIDIES

The most noted estimates of the opportunity costs of Soviet ruble trade with Eastern Europe have been computed by Michael Marrese and Jan Vanous (Table 2).[1] They calculate these subsidies by computing dollar/ruble price ratios for Soviet ruble and hard currency exports and imports for six commodity groups: machinery, arms, raw materials, fuels, foodstuffs, and manufactured consumer goods. These ratios are derived by calculating implicit prices for Soviet exports to socialist

[1]Marrese and Vanous, 1985.

Table 2

MARRESE-VANOUS ESTIMATES OF SOVIET TRADE SUBSIDIES TO EASTERN EUROPE
(Millions of 1984 U.S. $)

Year	Bulgaria	Czecho-slovakia	East Germany	Hungary	Poland	Romania	CMEA Six
1970	−9	541	1165	264	454	176	2589
1971	−26	606	1108	261	448	102	2499
1972	−110	380	959	114	367	70	1780
1973	250	592	1284	351	566	28	3071
1974	1352	1669	2673	1090	1340	59	8183
1975	1030	1361	1820	649	1341	12	6213
1976	1008	1605	2223	672	1350	82	6941
1977	1022	1634	2300	542	1307	96	6901
1978	1185	1494	2099	598	946	154	6475
1979	1655	1915	2605	989	1705	169	9037
1980	2700	3399	3958	1654	2974	303	14987
1981	2782	3534	4059	1653	3234	289	15552
1982	2324	2917	3455	1524	2611	277	13107
1983	1658	2374	2677	1115	2019	322	10165
1984	1744	2425	2758	1246	2148	379	10700

SOURCE: Marrese and Vanous, 1985, p. 17.

and nonsocialist countries and taking the ratio to obtain an exchange rate for each commodity group. The same procedure is used for imports. Marrese and Vanous then use these ratios, or exchange rates, to convert trade flows to the CMEA into dollars. For example, Soviet energy exports are converted to dollars by means of the implicit exchange rate for fuels, and machinery exports are converted with a different rate for machinery. Soviet imports in dollars are then subtracted from exports in dollars to obtain a dollar trade balance. If ruble trade is in balance, this dollar balance equals the subsidy, the difference in the dollar value of ruble trade flows. If ruble trade is not balanced, the deficit or surplus has to be factored out of the equation before the subsidy is computed by converting the ruble trade deficit to dollars with the average dollar value of Soviet ruble imports. The dollar value of the deficit is then subtracted from the dollar trade balance; the difference equals the subsidy.[2]

[2]An example should make this procedure clearer. Suppose Bulgaria imports 1 billion rubles of fuel and 1 billion rubles of machinery from the Soviet Union and exports 1.5 billion rubles of machinery in return. M-V obtain a dollar equivalent for Soviet fuel exports by multiplying 1 billion rubles worth of fuel by the dollar/ruble exchange rate for

Figures for the 1970–1984 period are enormous, annually running ⅓ to ½ the value of Soviet exports to Eastern Europe during the last decade. These subsidy estimates far exceed aid flows between any other two regions in the world.

Both Western and East European scholars have criticized these estimates for exaggerating the size of the subsidy.[3] Marer's criticisms have focused on estimates of the dollar/ruble exchange rate for manufactured goods, which has accounted for the bulk of the subsidy in recent years. The rates for homogeneous goods, such as petroleum, are easily computed; but when one is dealing with heterogeneous goods, such as machinery and consumer durables, several ad hoc assumptions concerning the equivalence of trade in various types of machinery have to be adopted for this method to work. Moreover, M-V are forced to compare Soviet ruble import prices with prices received for Soviet Bloc machinery exports to the West, rather than Soviet dollar import prices for equivalent machinery, to calculate this exchange rate.

Marer argues that this method biases this rate downward because M-V fail to adjust for lower Soviet Bloc prices in Western markets occasioned by trade discrimination and the inefficiencies of Bloc export regimes, not differences in quality. For example, barriers to trade, such as tariffs and technical standards set to favor domestic firms and export systems encompassing hard currency export plan targets and preferences for barter, force Bloc exporters to reduce prices even more than necessitated by differences in quality or delivery terms.[4] Moreover, several important East European exports are designed for the Soviet market (Polish ships, Hungarian buses, Czech nuclear power plants). Substantial modifications have to be made to alter these designs to fit Western specifications. Nonetheless, East European manufacturers have to take price cuts because of these designs, whereas one would imagine that the Soviets would be willing to pay a premium for a product designed for their industry. Finally, in the

fuel, say 2. They do the same for machinery, this time using the dollar/ruble exchange rate for machinery, say 0.5. The dollar value of Soviet exports would then be 2 billion dollars for energy plus 500 million dollars for machinery, for a total of 2.5 billion dollars. The same procedure is used to calculate the value of imports from Bulgaria. Assuming the same exchange rates, these imports would be worth 750 million dollars. Something must be done about the ruble deficit, however, because supposedly this credit will eventually be repaid. M-V convert this into dollars and then subtract it from the subsidy. The deficit is converted to dollars using the dollar value of a ruble of a market basket of imports from the country. In the example, this equals 0.5, the dollar value of a ruble of Bulgarian exports to the Soviet Union. Thus the total subsidy in this case is 2.5 billion dollars (Soviet exports) minus 750 million dollars (Soviet imports) minus 250 million dollars (the dollar value of the deficit) for a total of 1.5 billion dollars.

[3]Marer, 1984; Dietz, 1984; Van Brabant, 1984; and Koeves, 1983.

[4]Marer, 1984, p. 176.

West the East Europeans are marginal suppliers, but in the Soviet Union they are the main suppliers. Therefore, they would probably face much more pressure to cut prices in the West than if they sold manufactured goods for dollars to the Soviets. These factors indicate that using prices of Bloc exports to the West as a proxy for Soviet dollar import prices may understate the dollar value of East European exports to the Soviet Union and therefore lead to an upward bias in the estimate of the size of the subsidy.

Marer also argues that the use of world market prices for Soviet exports of raw materials to Eastern Europe overstates the value of these exports, because they are of lower quality. For example, the Hungarians claim Soviet cotton is of such poor quality that it cannot be used to manufacture clothes salable on Western markets.

Van Brabant (1984) argues that the comparisons of relative prices in Western and CMEA markets lead to biased estimates, because the "real" price in CMEA trade includes a multitude of nonprice commercial conditions.[5] One such example is a contract between Czechoslovakia and the Soviet Union signed in 1966 in which Czechoslovakia agreed to provide credits of 500 million rubles in exchange for assured deliveries of 5 million tons of crude oil annually between 1973 and 1984 at 15 rubles a ton. A similar agreement was signed with the German Democratic Republic (GDR) in 1967.[6] These agreements covered about one third of Soviet oil exports to these countries in 1974. These exports are factored into the M-V estimates, yet the gains to Czechoslovakia and the GDR stemming from the agreements are not subsidies; they are the fruits of a fortuitous investment.

Dietz (1984) also criticizes the M-V estimates for containing an upward bias. He questions the arbitrary discount factors adopted in M-V's 1983 work and challenges the magnitude of their figures by constructing alternative estimates. Dietz uses changes in Soviet terms of trade with Eastern Europe and estimates of potential changes in terms of trade if world market prices had been used to calculate the income forgone by the Soviet Union by using CMEA prices. These figures are given in Table 3. They run several billion transferable rubles, equivalent to a dollar figure of roughly the same magnitude.

Dietz's estimates lead to far smaller subsidies than M-V's. However, Dietz's figures and the M-V estimates in Table 2 are not strictly comparable because Dietz takes the existing differences between CMEA and world market prices in 1972 as a base. His figures show Soviet opportunity costs stemming from different rates of change in relative

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[5]Van Brabant, 1984, p. 128.

[6]Van Brabant, 1984, p. 130.

Table 3

A COMPARISON OF SUBSIDY ESTIMATES BY MARRESE-VANOUS AND DIETZ
(Millions of current transferable rubles)

Year	M-V	Dietz
1973	1019	251
1974	5163	2704
1975	5065	2007
1976	5906	2287
1977	6150	1731
1978	5851	889

SOURCE: Dietz, 1984, p. 44.

prices on the two markets since 1972. Nonetheless, one can compare the increases in the M-V estimates over their 1972 levels with the Dietz figures (Table 3). According to Dietz, the M-V estimates must be sharply biased upward. He notes that M-V estimates imply a potential increase in Soviet income due to terms of trade gains with Eastern Europe of 72.8 percent; actual Soviet terms of trade improvement with the *West*, in which the share of energy exports in total exports is much higher, was only 59.8 percent. Dietz's own calculations for Eastern Europe show only a potential 34.3 percent improvement, half the potential increase implicit in the M-V calculations.[7]

Dietz's comparison is worrying. Why should Eastern Europe's terms of trade have deteriorated more than Western Europe's, if CMEA trade were conducted at world market prices, when energy constitutes such a large share of Soviet exports to Western Europe? His work implies the upward bias in M-V due to their valuation of machinery trade is large and increased.

Who then is right? The M-V methodology is hard to fault, although the use of East European export prices to the West as a proxy for the dollar value of Soviet import prices of similar goods gives grounds for criticism. This imparts an upward bias to the estimates, as does the failure to exclude the portion of Soviet oil exports to Czechoslovakia and the GDR provided on the basis of the 1966 and 1967 agreements.[8]

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[7] Dietz, 1984, p. 45.

[8] A further upward bias may have been introduced in the calculation of dollar/ruble ratios for machinery because of data limitations and aggregation problems. Past work on CMEA pricing by the authors has been careful, so unless their work is duplicated with far different results, the statistical work should be accepted.

This implies that the M-V estimates in Table 2 are significantly biased upward. They should be considered a firm upper bound on the size of the implicit subsidy. The lower bound must lie somewhere above Dietz's estimates, because his estimates are for additions to the subsidy after 1972, his base year. In either case the subsidies are massive. More precise estimates await a better proxy for dollar/ruble exchange rates for the CMEA machinery trade and a finer discrimination between types of export contracts.

TRADE CREDITS

The Soviet Union also incurs large opportunity costs when granting ruble loans. This subsidy is two-fold. First, nominal interest rates on ruble loans run about 2½–3 percent[9] less than the Soviet discount rate (10 percent), the rate of increase in Soviet export prices to the CMEA (over 9 percent per year since 1980),[10] and market interest rates in the West. Thus, ruble loan recipients receive a large interest rate subsidy.

Second, because of intra-CMEA price ratios, East European countries enjoy a trade subsidy when they repay the loans. At world market prices the goods they use to repay the loans are worth substantially less than the goods they received on credit; the Soviet Union absorbs the difference.

For example, assume the Soviet Union has a trade surplus of 600 million rubles with East Germany (as it did in 1982), covered by a loan. The bulk of Soviet exports that constitute the surplus consist of goods that could easily be sold on world markets for hard currency (petroleum, iron ore, etc.). East Germany agrees to repay the Soviets for these exports in the future, but repayment will primarily consist of "soft" goods, low quality machinery for which the Soviet Union pays a higher relative price than if it purchased similar machinery from the West. The Soviet Union loses twice: once because it exchanges more valuable goods today for less valuable goods in the future, and once because the interest rate the East Germans pay on the loan is less than the rate of return the Soviets could obtain if they sold their exports to hard currency markets and deposited the proceeds in Western banks.

Table 4 contains estimates of the value of these subsidies for Eastern Europe between 1974 and the present. The estimates were calculated by converting estimated new ruble debt into 1984 dollars using the dollar/ruble conversion ratios for Soviet exports and dollar deflators in M-V (1985). Loans were assumed to be granted for a

[9]Fontenay, 1982, p. 58, and *Rocznik Statystyczny Handlu Zagranicznego*, 1983, p. 73.
[10]*Ekonomika*, 1977; *Vneshnaia Torgovlia SSSR statisticheskii sbornik*, 1981, 1984.

Table 4

SOVIET SUBSIDIES ON EAST EUROPEAN RUBLE DEBTS[a]
(Millions of 1984 U.S. $)

Year	Total Subsidy	Bulgaria	Czecho-slovakia	East Germany	Hungary	Poland	Romania
1975	970	140	130	350	40	310	0
1976	1000	110	120	500	190	90	0
1977	1370	190	260	670	180	70	0
1978	890	170	0	380	220	130	2
1979	1410	190	210	460	230	210	110
1980	2880	340	210	880	550	750	160
1981	3990	750	350	650	360	1710	160
1982	2940	680	380	880	380	800	−180
1983	1970	450	380	420	420	310	0
Total	17420	3020	2020	5170	2570	4380	260

[a]Discount rate—10%, Interest rate—3%, Loan length—10 years, no grace period, deflator—implicit Soviet trade deflators from *Vneshniaia Torgovlia SSSR.*

period of ten years at a 3 percent rate of interest.[11] Annual payments (interest and principal) on the loans were then converted into 1984 dollars using the dollar/ruble conversion ratios for Soviet imports and the deflators cited in M-V (1985). These payments were present-valued using a 10 percent discount factor[12] and then subtracted from the value of the original loan. The difference equals the credit subsidy.

Because these figures were calculated using the M-V exchange ratios, they suffer from the same upward bias as the M-V estimates. The estimates for Bulgaria, Czechoslovakia, and East Germany may also be biased, probably upward, because the debts of these countries were estimated from trade data. Czechoslovakia and East Germany have probably run surpluses in service trade with the Soviet Union because of transit charges on Soviet-West European trade. Nevertheless, rankings in terms of credit subsidies are probably correct, as is the conclusion that these subsidies have been large.

[11]These are rough averages for interest rates on Polish and Hungarian ruble loans (Fontenay, 1982, p. 58; and *Rocznik Statystyczny Handlu Zagranicznego*, 1983, p. 73).

[12]This figure is used by the OECD to calculate the grant portion of subsidized loans granted by member states (*Soviet, East European and Western Development Aid*, 1983). It is also the official Soviet discount factor (*Ekonomika*, 1977).

OTHER POTENTIAL ECONOMIC FOREIGN POLICY COSTS

Aside from providing its partners with favorable terms of trade and balance of payments loans, the Soviet Union also uses several other instruments in its economic foreign policy, many of which have been fashioned and are wielded under the umbrella of the CMEA. They include: specialization agreements, target programs, cooperation in planning, joint ventures, and agreements on sharing the results of scientific research and technological development.

Specialization agreements are nonbinding accords directing individual countries to specialize in particular products. Several hundred bilateral agreements have been signed within the CMEA; multilateral agreements numbered over one hundred in 1977.[13] They cover a large portion of machinery trade in the CMEA. These agreements are implemented at the discretion of the participating governments; they often merely formalize the existing pattern of trade.

Although all parties probably benefit from these agreements, an exact calculation of net gains is beyond the scope of this report. The agreements can generate economic losses, however, if a partner fails to uphold its side of the agreement. This has been especially costly for the smaller countries in the Bloc, because they often rely completely on imports for particular commodities. For example, the Hungarians agreed to specialize in the production of large buses and the East Germans in small buses. The East Germans failed to fulfill their part of the bargain and Hungary was forced to renew production of uneconomical quantities of smaller buses.[14] The Soviet Union generally uses imports from Eastern Europe to supplement domestic production, so it is better insulated from these shortcomings.

The CMEA also sponsors target programs in which participating countries either coordinate or jointly initiate investments in an economic area of major joint concern. These investments have been concentrated in the Soviet Union and have been designed to provide raw materials to Eastern Europe. They also provide a mechanism for transferring capital in the CMEA. Capital is transferred physically, rather than financially. Contracts stipulate physical quantities of steel, manpower, and machinery to be provided by the Eastern Europeans and the amounts of raw materials the Soviets will ship in return. The East Europeans also often commit themselves to purchasing Western machinery, paid for in hard currency, for these projects.

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[13] Pecsi, 1981, p. 13.

[14] Bauer and Soos, 1979.

These projects are expensive and entail a substantial investment commitment on the part of the East Europeans. The most famous and the largest of these projects has been the Orenberg Gas Pipeline with an estimated cost of almost $12 billion. Given the cost of these projects and the need for the Soviets to pressure their partners to participate, one wonders whether the East Europeans have been subsidizing Soviet economic development through these programs.

The answer in the case of the Orenberg pipeline appears to be No. Both the Soviet Union and Eastern Europe have benefited from the transaction; the Soviets obtained the capital necessary to develop gas reserves at a time when pressures on investment were increasing, and the East Europeans obtained annual rates of return of 19.5 to 31.5 percent, comparable to rates of return on similar projects in the West.[15] Nonetheless, few new projects have been undertaken since the Orenberg pipeline, in part because the East Europeans have found it so difficult to determine the payoff from the projects. The distribution of project costs and overruns is not determined ahead of time, and the prices of output are also ambiguous during the period of construction.[16] Moreover, investment has been squeezed in every country in the Bloc, so leaders are reluctant to make commitments to large international projects when domestic producers are undergoing cuts.

The Soviets also push the East Europeans to cooperate in planning. Although both parties could conceivably benefit from more integrated investment policies, plan fulfillment has been mixed in all countries and CMEA suppliers tend to be unreliable, so leaders are reluctant to depend heavily on decisions made outside the country. Soviet success has been poor in this area, possibly because the costs of poor decisions would be borne disproportionately by the East Europeans, who are more dependent on sole sources of supply.

The CMEA also encourages transfers of technology between countries. The net beneficiaries of this policy are hard to determine. On the one hand, the less developed members of the Bloc, such as Romania and Bulgaria, would benefit from designs and discoveries of the more advanced countries. On the other hand, these designs are supposed to be transferred free of charge, so the inventors have little incentive to make the transfers, and the less developed countries may be denied technologies they would have been willing to purchase were commercial licensing arrangements more widespread in the Bloc. Possibly because of this bottleneck, in recent years more licenses have been sold on a commercial basis within the Bloc, which has probably facilitated transfers of technologies.

[15] Hannigan and McMillan, 1981, p. 259.

[16] Csaba, 1985, p. 238.

There is little evidence to show that this policy leads to a one-way transfer of Soviet technology to Eastern Europe. In several areas (pharmaceuticals, robotics, computer peripherals, shipbuilding) Eastern Europe is as advanced as the Soviet Union, or more so. The benefits of scientific exchanges flow both ways.

SOVIET SUBSIDIES TO EASTERN EUROPE COMPARED WITH OTHER AID FLOWS

To provide a sense of the magnitude of these opportunity costs Table 5 compares them with figures for U.S. economic aid, primarily directed to third world countries, and Soviet economic aid to Cuba. The sums use the M-V estimates and the credit subsidy estimates in Table 4 and should be considered extreme upper bounds. The sums for Eastern Europe exceed these other resource flows, although Soviet trade subsidies to Cuba have surpassed subsidies to the individual East European countries for quite some time.

Table 5

SOVIET SUBSIDIES TO EASTERN EUROPE COMPARED WITH OTHER AID FLOWS

(Billions of 1984 U.S. $)

Year	Trade Subsidies	Eastern Europe Credit Subsidies	Total[a]	Soviet Economic Assistance to Cuba	Total U.S Foreign Aid
1971	2.50	NA	2.50	1.44	10.08
1972	1.78	NA	1.78	1.42	9.22
1973	3.07	NA	3.07	1.17	6.70
1974	8.18	NA	8.18	0.44	6.97
1975	6.21	.97	7.18	1.24	8.28
1976	6.94	1.00	7.94	1.96	11.21
1977	6.90	1.37	8.27	2.67	7.30
1978	6.48	.89	7.37	3.31	7.31
1979	9.04	1.41	10.45	3.00	6.43
1980	14.99	2.88	17.87	2.87	8.46
1981	15.55	3.99	19.54	3.68	8.22
1982	13.11	2.94	16.05	4.27	9.45
1983	10.17	1.97	12.14	3.84	10.20
Total	104.92	17.42	122.34	31.30	109.83

SOURCES: Trade Subsidies—Table 2.
Credit Subsidies—Table 4.
Soviet Assistance to Cuba—Directorate of Intelligence, 1984, p. 40.
Total U.S. Foreign Aid—*Budget of the United States Government,* "National Need: Coordinating International Relations: Outlays," various years, inflated to 1984 dollars.
Deflator—Marrese and Vanous, 1985.
[a]1971-1974—Trade subsidies only.

III. WHY HAS THE SOVIET UNION BEEN SUBSIDIZING EASTERN EUROPE?

This section examines a series of hypotheses explaining the Soviet Union's willingness to incur these costs. These hypotheses are in general found wanting. A better explanation for the subsidies, explored in Sec. IV, appears to be Soviet preferences for the present CMEA trading system coupled with the desire to temper the cost of East European economic adjustment to higher energy prices.

SOVIET PERCEPTIONS OF THE SIZE OF THE SUBSIDIES

One possible explanation for Soviet willingness to absorb these large opportunity costs is that the Soviets and the East Europeans have not perceived a subsidy; therefore there has been little pressure to eliminate it. Dietz notes that the Soviets made no complaint about the costs of inferior terms of trade until 1979, and then again in 1981 during the Polish crisis. Moreover, Soviet terms of trade with Eastern Europe have improved very rapidly since 1975 (Table 6), and in a manner consistent with the CMEA system of setting prices.[1] Although in real terms the East Europeans have not had to pay as much for oil as the rest of the world, they now ship almost 50 percent more goods to the Soviet Union for the same quantity of imports as in 1975. Bloc leaders may perceive transfers of wealth as having been from Eastern Europe to the Soviet Union, rather than in the reverse direction. However, the East Europeans have consistently pushed for increased deliveries of Soviet oil, even when reducing oil imports purchased for hard currency, indicating that they, and most probably the Soviets also, have been well aware of the differences between ruble and dollar prices for oil and the ensuing opportunity cost to the Soviets of oil exports to Eastern Europe.

The subsidy is, however, the result of the difference between relative prices for energy, especially oil, and machinery in CMEA trade and those on world markets, not differences in dollar/ruble prices for energy. Bloc leadership perceptions of high relative ruble prices for machinery are probably more mixed. Despite the acknowledgment by many East European manufacturers that the quality and servicing of

[1]Dietz, 1984, p. iii.

Table 6

SOVIET OIL EXPORT PRICES AND TERMS OF TRADE
(Per metric ton)

	Soviet Oil Prices		Soviet Terms of Trade		
Year	CMEA (Transferable rubles)	World Market (Transferable rubles)	with the CMEA	with the West	Ratio of (3) to (4)
	(1)	(2)	(3)	(4)	(5)
1970	15.3	11.9	100.0	100.0	1.00
1971	15.4	15.5	100.6	112.5	.89
1972	15.7	17.7	100.1	83.7	1.20
1973	16.0	21.1	100.8	96.4	1.05
1974	18.1	60.7	101.0	120.1	.84
1975	33.8	63.5	106.6	129.9	.82
1976	37.1	70.2	110.2	145.2	.76
1977	46.9	73.7	114.9	154.6	.74
1978	55.9	68.9	118.0	159.8	.74
1979	63.6	93.4	120.5	209.0	.58
1980	74.7	159.7	122.2	244.6	.50
1981	95.0	192.5	133.5	250.2	.53
1982	117.4	179.4	148.3	NA	NA
1983	138.8	159.5	NA	NA	NA

SOURCE: CMEA Oil Price 1970–1971—Calculated from *Vneshniaia Torgovlia SSSR: statisticheskii sbornik*, 1971.
World Market Price 1970-1971—Vanous, 1981, p. 554.
All other data—Dietz, 1984, Tables 1 and 8.

their equipment are not at world market levels,[2] the extent of the difference is open to dispute. Naturally, East European exporters tend to believe their products are closer to Western quality and performance levels than would a more objective judge. Although the Soviet buyer may feel the gap is wider, in the absence of parallel production lines using Western machinery the Soviets cannot know what the difference is and have no way of measuring the subsidy. Even if a measure existed, the Soviets and the East Europeans would argue over its use. Thus the East Europeans probably do not perceive as large price differentials in machinery trade as M-V nor as large a subsidy.

The Polish, Hungarian and Romanian leaderships are aware that the cost of earning a ruble of foreign exchange is less than earning a

[2]Crane, 1983.

dollar. In 1984, Hungarian exporters received 45 forints for each dollar of exports, and only 26 forints per ruble. In other words, the Hungarians valued the ruble at less than 60 percent of official Soviet rates; the ratio in Poland is similar.[3] These exchange rates, coupled with the oil price differential, indicate that although Bloc leaders probably do not know the magnitude of Soviet opportunity costs in intra-CMEA trade, they are aware that such costs exist.

PRICE DIFFERENTIALS AS A PAYMENT FOR SHARING RISK

Another possible explanation for the differences between relative prices in the CMEA and world markets and the resulting opportunity costs is Soviet willingness to sign long-term contracts at fixed prices to offset price fluctuations. Long term contracts are a standard feature of international trade. Exxon and Mobil have contracted with Saudi Arabia to purchase oil at fixed prices. The two parties trade potential short run gains for long run certainties. Thus when spot market prices fall below contract prices, Exxon is not subsidizing Saudi Arabia but is paying an opportunity cost for fixed prices and supplies.

In the CMEA most trade is conducted under several such long term contracts. In fact, the Soviet Union and its partners originally set up the CMEA pricing system during the Korean War commodity boom to safeguard against sudden changes in prices—to spread this risk.

Soviet willingness to trade potential short run gains from price fluctuations for stability is not surprising. Soviet planners prefer such a system because it provides them with the fixed quantities and commodity schedules they need to construct material balances. The Soviet government can also push for large joint projects in the CMEA more easily if it can assure East European governments that it will provide the needed raw materials in requisite quantities at a fixed price and will also purchase the output at a set price.

If this argument explains the subsidy, over the long run CMEA contract prices should fall somewhere in the middle of the range of spot prices, for if spot market prices are consistently above or below the contract price, one party always loses and therefore has no incentive to enter into the contract. I have attempted to test this hypothesis by comparing dollar/ruble price ratios as calculated by M-V with the dollar/ruble ratio that would prevail if intra-CMEA trade were con-

[3]Dietz, 1984.

ducted at spot market prices—the official exchange rate.[4] If the subsidy is really a price for risk-bearing, not a grant, the official exchange rate should bracket the M-V ratios over the long run.[5]

For the 1970–1983 period this hypothesis can be rejected for all commodity groups except raw materials and Soviet imports of energy.[6] Risk aversion could be used to explain trade prices in these commodity groups only; another rationale has to be sought to explain pricing for the other commodity groups.

UNCONVENTIONAL GAINS FROM TRADE

Marrese and Vanous argue that the Soviet Union provides *anticipated* (planned)[7] trade subsidies to Eastern Europe to secure the "allegiance" of the Bloc. Furthermore, the Soviets set the level of per capita subsidies for each country in accordance with the level of allegiance the country provides. The Soviet and East European countries' leaderships have adopted this cumbersome way of transferring resources to disguise the transactions from their citizenry.[8] The Soviets wish to hide from their people transfers of wealth to the ungrateful East Europeans, and the East European elites want to cover the sale of national honor for a few barrels of oil.

Few would argue that one reason the Soviets set up and participate in the CMEA is to foster political control over Eastern Europe. Specialization programs, the construction of interlocking power grids and gas pipelines, and long run trade agreements tie Eastern Europe to Soviet markets and Soviet sources of supply. The Soviets also use trade to favor selected countries. For example, Cuba receives very favorable prices for its sugar and pays concessionary prices for Soviet

[4]If CMEA trade was conducted at world market prices and these prices were converted at the official rate, the dollar/ruble ratio for each commodity group would be identical to the official rate. Therefore, the extent to which the M-V ratios differ from the official rate reflects the difference in CMEA and world market prices.

[5]One problem with this approach is that CMEA prices are supposed to be moving averages of world market prices. During a period of large changes in relative prices, such as the 1970s, windfall gains or losses may accrue to one party over a substantial period of time, which would make the system appear one-sided.

[6]A binomial test was used with a 1 percent region of rejection. When the official exchange rate exceeded the M-V rate it was assigned a value of one; when below, a value of 0.

[7]M-V differentiate between the total subsidy, (which is partially determined by changes in the world market price of oil, and the *anticipated* subsidy, equivalent to the amount the Soviets would presumably have planned to transfer if relative world market prices had been stable (Marrese and Vanous, 1985, p. 4).

[8]Marrese and Vanous, 1983, p. 11.

oil. Within the CMEA the Soviet Union appears to have rewarded Bulgaria by selling oil for rubles, some of which the Bulgarians then reexported to the West for dollars. Romania appears to have been penalized for its foreign policy independence, because it must pay world market prices in hard currency for Soviet oil.

This said, the M-V argument is unsatisfying. First, the magnitude of the subsidies is not an operational foreign policy instrument.[9] The Soviets can and do control the price and quantity of crude oil exports; political factors doubtless play a role in determining at least quantity levels.[10] The second side of the subsidy, the Soviet Union's willingness to purchase East European manufactures at prices that are higher than prices for Western goods, relative to the ruble price of oil, cannot be so easily ascribed to a conscious policy decision. Thousands of prices are set in machinery trade in sessions between Soviet and East European trade negotiators who use reference prices obtained from alternative Western suppliers, such as Siemens, the West German electrical and electronics concern, and MAN, the German truck manufacturer.[11] Unfortunately for the Soviets, these reference prices are for Western machinery, which tends to be more reliable, has better servicing, and often has higher operating rates than the East European products. Although Soviet negotiators may know this, it is extremely difficult to arrive at a "correct" quality discount, because they lack alternative base prices from which to bargain.

Although minor, cultural and systemic factors may also combine to increase machinery prices paid by the Soviets. Some East European negotiators reportedly take gifts of high quality consumer items (wine, liquors, appliances, and clothes) with them to Moscow before negotiations begin. The Soviet negotiators are expected to reciprocate by accepting higher than warranted prices for East European exports.[12] Because Soviet trade negotiators work for the foreign trade organizations, not the factories that purchase the equipment, they suffer few, if any, repercussions if the purchased machinery is of lesser quality than promised. Given endemic excess demand for manufactured goods in the Soviet Union, Soviet factory managers would feel compelled to accept the imported goods rather than do without. The reverse situation, Soviet bribes to East European negotiators to pay higher prices

[9]Dietz, 1984, p. 54 makes this point.

[10]Evidence that ruble prices are varied from country to country on political grounds is not as clear. Ruble prices for planned deliveries of oil may be the same for each member of the Bloc. Differences noted in average prices may be due to above plan purchases or other commercial arrangements.

[11]The domestic cost of manufacturing the products is also taken into consideration.

[12]Conversations with East European economists.

for Soviet machinery, may also exist; but they would not be of such import, because machinery exports are proportionally smaller for the Soviets.

Why should the Soviet and East European leaderships go to such lengths to disguise the subsidy? Surely, the East European citizenry finds the Soviet military bases in Hungary, Czechoslovakia, the GDR, and Poland a far more blatant affront to sovereignty than the knowledge that they are receiving payments under the table for providing political support to the Soviets. Moreover, disguising the subsidy through concessionary pricing makes it nigh impossible for the Soviet and East European leaderships to know its size, especially as such a large share of the subsidy comes from machinery trade. How can a deal be made if neither side knows what it is getting in exchange?

Third, as Brada (1985) points out, M-V fail to define the supply curves and the composition of Soviet demand for "allegiance" in an operational manner. They fail to explain how changes in Soviet perceptions of economic, political, and security concerns effect the size of the subsidy. Presumably the Soviets equalize the marginal benefits and marginal costs of "allegiance" across countries. A flatter supply curve for Bulgarian "allegiance" may explain why the Soviets purchase more from the Bulgarians than from the Romanians. It seems strange, however, that the Soviets failed to increase their expenditures on Polish allegiance more rapidly in 1980 and 1981 than in other, more stable countries such as the GDR or Czechoslovakia (Table 2), because the marginal cost of Polish unrest was doubtless very high. Without specifying the determinants of Soviet demand for "allegiance" in more detail, the model is not testable; we cannot predict how subsidy levels will respond to changes in the political and military environment.

CUSTOMS UNION EFFECTS

Holzman (1962, 1965, 1976) and Brada (1985) have argued that the differences in CMEA and world market terms of trade and the resulting subsidies are due to customs union effects. They argue that the CMEA can be considered a customs union that promotes intragroup trade through administrative means (joint planning, a state monopoly on foreign trade, import permit schemes, etc.), rather than tariffs. Brada (1985) points out that according to the Heckscher-Ohlin theory of the determinants of international trade, relative prices within such a union may differ from those on the world market because of differences in factor endowments. However, even countries that suffer from inferior terms of trade within the union may still find it economically

advantageous to participate, because gains from trade due to increases in trade volume generated by the union may swamp the terms of trade losses.

This argument is buttressed by many of the characteristics of CMEA trade. Because energy has been fairly abundant within the CMEA and capital fairly scarce, the implicit prices Marrese and Vanous computed for machinery and oil are consistent with this theory. The union also appears to have generated substantial increases in intragroup trade. Trade with other members of the CMEA, especially Soviet trade, has expanded very rapidly since the union's formation in 1949. Moreover, countries that suffer the greatest terms of trade losses within the CMEA tend to trade most outside the union (Romania and the Soviet Union); those that benefit the most conduct the greatest share of their trade inside (Czechoslovakia, Bulgaria). These countries are behaving as predicted by the model.

If this hypothesis is true, the pattern of subsidies by country in the Bloc should correspond to factor endowments. To test this hypothesis, I regressed per capita subsidies on capital/labor ratios, energy self-sufficiency, and the ratio of CMEA to world market oil prices.[13] I then used this equation to predict per capita subsidies for the CMEA Six.

Table 7 records the regression results. Based on the results of the regression, we may reject the hypothesis that the variation in subsidies is not due to customs union effects. The coefficients on the independent variables are of the right sign and are all significantly different from 0.

Table 7 also compares the sum of per capita subsidies by country between 1970 and 1982 with the sum of subsidies predicted by the model. Because of the poor quality of the capital data from these countries and the lack of confidence intervals for the M-V calculations, it is difficult to test whether these estimates are significantly different from the M-V calculations. Significant differences could stem from omitted variables (for example, a variable for endowments of agricultural land) or errors in measurement of the capital stock.

Of more import are the rank orderings. All the countries switch orderings, although none jumps rank. Tests indicated that the two series were at least correlated.[14]

The statistical evidence for this hypothesis is strong; leading to another question: Why do the Soviets participate in a trading system

[13]The data and rationale for the form of the regression are given in the appendix.

[14]To judge whether the shift in ranks was highly significant, I conducted a Spearman rank order test of the hypothesis that the two orders were uncorrelated. Although this hypothesis was rejected at the 10 percent level of significance, this test merely indicates that there is a positive correlation between the two patterns, not that they are the same.

Table 7

FACTOR ENDOWMENTS AS A PREDICTOR OF TRADE SUBSIDIES

	Bulgaria	Czecho-slovakia	East Germany	Hungary	Poland	Romania
Per capita ranking						
Actual	2	3	1	4	5	6
Predicted	1	4	2	3	6	5
Cumulative per capita amounts—1970–1982						
M-V estimates	1710	1440	1770	980	530	80
Predicted	1570	1300	1550	1340	220	530

Regression Equation

$$\text{Per capita subsidy} = \underset{(-2.85)}{-92.21} + \underset{(2.78)}{68.1} \times KL - \underset{(-5.0)}{138.23} \times E + \underset{(3.63)}{40.2} \times OP$$

where KL is the capital/labor ratio, E is the percentage of domestically produced energy consumed, and OP is the ratio between CMEA and world market oil prices in rubles. Figures in parentheses are t-statistics. The number of observations was 78. The F-statistic was 16.7, which was significant with a probability of over one in 10,000.

in which their terms of trade are so inferior to what they could get elsewhere? It is hard to believe that the gains to the Soviet Union from the increased volume of trade due to the creation of the CMEA surpass the opportunity costs of trading at CMEA relative prices, if the M-V subsidy estimates of ⅓ to ½ the value of Soviet exports to the region are to be believed. A much stronger argument is that the Soviets have a preference for trading with CMEA for security and political reasons. The next section examines this argument in detail.

IV. EAST EUROPEAN ECONOMIC PROBLEMS AND THE SOVIET UNION

ANOTHER RATIONALE FOR SUBSIDIES

To answer why the Soviets are willing to incur these opportunity costs it is useful to analyze two separate Soviet policy decisions: (1) the decision to adopt the trading system used within the CMEA, and (2) specific decisions made by the Soviets and East Europeans on prices and quantities traded within this system.

Although the Soviet Union suffers unfavorable terms of trade within the CMEA, it has important strategic, ideological, bureaucratic, and political stakes in the system. Soviet interest in using the CMEA to avoid both Soviet and East European economic dependence on the West is evident in both the 1984 CMEA summit conference communique "Statement on the Main Directions of Further Developing and Deepening the Economic, Scientific and Technical Cooperation of the CMEA Member-Countries" and in former Politburo member Grigorii Romanov's speech at the 1985 Hungarian Party Congress. The first document says:

> The planned development of the national economies of the CMEA member-countries and their mutual cooperation have made it possible in many fields . . . to counteract the aggressive course of the imperialist circles and the attempts of the U.S. and some of its allies to pursue a policy of economic pressure and discrimination.

Romanov's speech to the Hungarians contains the following warning:

> The strategic decisions it [the CMEA summit] took are of tremendous economic and political significance for each fraternal country and for the community as a whole. . . . Political importance inasmuch as they lead to an improvement in the standard of collaboration and cooperation and to consolidation of our states' economic independence from the West.[1]

These statements show that the Soviets see the CMEA and the economic mechanisms used to integrate the community as strategically

[1] *Pravda*, March 27, 1985, p. 4.

important because they prevent the West from dominating the Bloc economically.

The Soviets also have an ideological stake in the CMEA. For example, the CMEA forms the socialist counterpart to the Common Market in Western Europe. The Soviets also point to the CMEA as proof of the superiority of planning over markets. Although the importance of ideology in Soviet decisionmaking is open to question, it may be large enough to make the leadership willing to bear some costs to preserve the foreign trading system employed in the CMEA.

Csaba (1985) and Koeves (1983) both trace the pattern of intra-CMEA trade, which gives rise to the subsidies, to Soviet preferences, based on ideology, for the Stalinist development model. Both the Soviet and East European leaderships interpreted economic development as the construction of heavy industry. In some cases, most notably Czechoslovakia, the Soviets pushed heavy industrial development harder than the local party leadership. Because the East Europeans lacked the raw material base on which to construct such industries, this strategy implied continuous large imports of Soviet raw materials and the present pattern of trade. In the 1950s and 1960s this ideological bias started a pattern of higher internal and external prices for manufactures, and shortages of raw materials through the neglect of investment in mining and agriculture. Koeves (1983) argues further that the present CMEA system has evolved in response to a Bloc development policy based on growth through import substitution and central planning. Notwithstanding policy statements to the contrary, this policy has been pursued at the expense of "an active participation in the world economic division of labor"[2]—i.e., these countries have paid a high price in forgone efficiency because they were unable to exploit gains from trade.

Soviet planners also have a vested interest in the present trading system. Gosplan, the central Soviet economic control organ, has had a strong preference for material balancing. The present system of annual trade agreements negotiated under the auspices of the CMEA fits neatly into that system.

Finally, the Soviets use the CMEA to foster the integration of the East European economies with the Soviet Union. In other words, the CMEA is an economic tool for political control. Within the confines of the CMEA the Soviets are able to influence East European industrial development through long term trading agreements. They also tie these countries to Soviet sources of supply through infrastructure investments and through trade and credit subsidies.

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[2]Koeves, 1983, pp. 125–136.

The Soviets have a great deal invested in the preservation of the CMEA trading system, and a great deal of the subsidies can be explained as a by-product of this system. Holzman's and Brada's argument that CMEA terms of trade differ from those on the world market because of different factor endowments is one logical outcome. So is the insistence on the use of world market prices as a base for intra-CMEA prices. These prices should minimize the costs of participating in the customs union. However, they also introduce a negotiating advantage for exporters of machinery, since West-East price comparisons are so much more difficult in this area.

Soviet preferences for the CMEA trading system do not, however, explain why the Soviets have acquiesced to the continued use of the five-year moving average price system, which has become so disadvantageous for them. A plausible rationale for this policy decision is that the Soviets have tried to forestall domestic unrest in Eastern Europe, and the resulting military and economic costs of stamping it out, by gradually phasing in the costs to Eastern Europe of higher energy prices. Further, Soviet leaders found this cost tolerable because the rapid improvement in Soviet terms of trade with nonsocialist countries provided them with windfall gains, which lessened domestic economic pressures to increase oil prices to Eastern Europe to the same extent.

The Soviets are well aware that economic grievances have generally sparked political crises. The 1953 strikes in the GDR were set off by increases in work norms.[3] The Hungarian revolution was spurred by the fall in living standards experienced under the Rakosi regime. The 1956, 1970, 1976, and 1980–1981 crises in Poland were set off by strikes in response to policies that workers feared would lead to a fall in the standard of living. The 1968 reforms in Czechoslovakia were in part a response to poor economic performance. The hypothesis that Soviet willingness to trade at disadvantageous terms with Eastern Europe stems from the desire to forestall political unrest is examined below.

EAST EUROPEAN ECONOMIES IN THE EARLY 1970s

The Soviet Union had little cause to subsidize Eastern Europe in the early 1970s. Economic growth in these countries was proceeding at a rapid rate; increases in national income surpassed those of the early 1960s in most of the Bloc. Marer (1981) traces part of these increases to expanding trade within the CMEA. For example, substantial increases in Soviet exports of petroleum contributed to the

[3]Childs, 1983, p. 31.

development of the petrochemical and motor vehicle industries, two of the most dynamic sectors in Eastern Europe at the time.

Marer also notes that Eastern Europe was given an economic boost in the 1970s through rapidly expanding trade with the West. Import-led growth was most noticeable in Poland and Romania; but even in orthodox Czechoslovakia, increases in the share of total trade conducted with the West coincided with accelerated economic growth.

Initially expanded trade with the West helped to fuel large increases in investment in the region (Table 8). This investment drive not only expanded the capital stock but substantially improved its quality, because much of the new stock was composed of more productive Western machinery.[4]

Overt signs of Soviet economic assistance are minor in this period. All the countries of Eastern Europe recorded trade surpluses with the Soviets between 1970 and 1974. Moreover, in 1975 the Soviet Union broke the terms of the Bucharest accords[5] and raised the price of oil exports, indicating it thought the East Europeans could afford to pay higher prices for oil. Subsequently, the Soviets were able to reach an agreement with Eastern Europe to replace the old price setting system with a system whereby prices were adjusted annually according to a moving five-year average of the world market price. The new system, the Moscow formula, adopted in 1975, was much more favorable to the Soviets than the old Bucharest formula, although it continued to cushion the shock of the abrupt rise in the price of energy and raw materials in 1973–1974.

ECONOMIC DECLINE IN THE LATE 1970s

The Road to Ruin

Eastern Europe continued to grow rapidly through 1977–1978, although some countries began to lose macroeconomic control. Trade accounts, both hard currency and ruble, were the first indicators of serious imbalances. The region had turned to international capital markets in a major way in the early 1970s, but initially loans had been designated for capital imports. Planners, especially in Poland and Romania, hoped that the new investments would generate high-quality manufactures that could be exported to pay off the debts. By 1975 the

[4]Gomulka and Sylwestrowicz, 1976.

[5]The Bucharest accords, adopted in 1958, stipulated that prices in intra-CMEA trade were to be fixed for the entire five-year plan period on the basis of average world market prices during the preceding five-year period.

Table 8

INCREASES IN INVESTMENT, NMP, AND UNI IN EASTERN EUROPE
(In percent)

Year	Bulgaria	Czecho-slovakia	East Germany	Hungary	Romania	Poland
Net Material Product						
1971-75[a]	7.8	6.1	5.0	4.2	3.0	4.6
1976-80[a]	5.7	3.7	-0.1	0.2	2.4	2.8
1981	5.4	4.1	4.8	2.6	4.4	5.5
1982	6.2	3.2	2.5	2.6	0.3	2.5
1983	11.2	7.3	2.2	2.7	3.4	7.7
1984	9.8	1.2	-12.0	-5.5	6.0	5.6
Utilized National Income						
1971-75[a]	8.6	2.8	7.7	1.9	1.2	2.8
1976-80[a]	6.1	2.2	-3.4	-1.6	0.7	1.5
1981	4.7	3.6	1.3	-3.4	0.3	3.3
1982	5.6	1.9	0.7	-1.1	-2.7	-0.6
1983	11.6	-0.2	-10.5	-10.5	5.4	5.0
1984	NA	6.9	-5.7	-2.2	0.7	3.4
National Income Used for Net Investment (Accumulation Fund)						
1971-75[a]	12.9	0.1	14.8	-3.3	-3.6	1.4
1976-80[a]	8.4	1.4	-21.7	-3.6	-7.2	-3.3
1981	2.9	3.0	-3.4	-19.9	-1.9	-0.6
1982	8.1	-2.0	-8.6	-12.4	-20.4	-11.3
1983	18.1	-11.8	-27.6	-6.6	4.9	6.3
1984	NA	6.6	-22.1	-4.3	2.0	2.4

SOURCES: 1971-83: National Statistical Yearbooks (for all countries except Romania) and unpublished official Romanian statistics as reported in *WEFA*, Vol. 5, No. 25-26, March 27, 1985.

1984: Hungary and Poland—National Statistical Yearbooks. All other countries—Preliminary official statistics published in 1984 plan fulfillment reports and estimates made by PlanEcon, Inc. as reported in *WEFA*, Vol. 5, No. 25-26, March 27, 1985.

[a]Average annual rate of growth.

entire Bloc had significant hard currency debts, but only Bulgaria showed signs of finding its debt burden becoming unmanageable.

Responding to deteriorating terms of trade with the Soviet Union and on world markets, borrowing accelerated following the 1974–1975 recession in the West. Initially, the Soviets were willing to forgo much of the increase in its terms of trade by advancing ruble trade credits. In the West, banks and governments were happy to fill hard currency current account gaps until 1980–1981.

Much of the new lending, dollar and ruble, was balance of payments loans[6] directed toward financing imports of agricultural goods and raw materials and components, not investments. For example, the large increases in Romanian debt in 1978–1980 stemmed from increasing imports of oil needed to fuel its newly constructed refineries.[7] Most new Polish loans went for agricultural products, raw materials, and debt service. Hungary and the GDR experienced similar patterns. As loans were redirected from investment to debt service and consumption, they provided less of a boost to growth.

Credit terms began to harden for the entire bloc in 1980, in part because of worries about Poland. Higher risk premiums on top of rapidly rising interest rates on international financial markets put great pressure on the hard currency balance of payments. When new credits began to dry up in 1981 and disappeared altogether in 1982, first Poland and then Romania requested a rescheduling. The GDR and Hungary reduced imports rapidly and frantically sought sources of funds to stave off a similar fate.

The hard currency credit squeeze coupled with an acceleration in the deterioration in terms of trade with the Soviet Union led to the 1981–1982 recession in Eastern Europe. With the exception of Poland, these countries had to rapidly increase the volume of exports to the Soviet Union to pay for diminishing imports of oil.[8] Simultaneously, hard currency imports were slashed to close the hard currency trade deficit; Poland and Romania cut them by half. Most of the countries adopted import curbs by default; banks and suppliers were no longer willing to provide import credits. Exports also declined in most countries (the GDR being the notable exception) but less rapidly than imports, so hard currency trade balances were forced into the black.

Stabilization

Import curbs worked. The credit crisis was over by 1984 for every country except Poland, although Romania, Hungary, and, possibly to a lesser extent, the GDR continue to be overborrowed.[9] Bulgarian and Hungarian hard currency export performance began to improve, but Polish and Romanian hard currency export levels in 1983 still lagged their previous peaks.

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[6] Zoeter, 1981.
[7] Jackson, 1984.
[8] Vanous, 1983c.
[9] Crane, 1985.

The price for balance on the hard currency current account was a large fall in utilized national income, the goods and services consumed by a country. Declines in the standard of living in various years caused part of this reduction, but the brunt was borne by investment (Table 8). By and large, the East European governments traded future economic growth for external equilibrium and the preservation of the current standard of living.

SOVIET POLICIES TO TEMPER THE DECLINE

The Soviets had good reason to be wary of the political consequences of economic decline in Eastern Europe. Throughout the Bloc, dissident groups gained in strength after the signing of the Helsinki accords. More threatening was recurrent labor unrest. Major strikes broke out in Romania in the coal-mining region in the Jiu valley in 1977 and in Poland in Radom in 1976. The Romanians successfully quashed their strike. The Polish strike was followed by the rise of unofficial labor unions, which became the precursors of Solidarity. Strike demands concerning wages and working conditions were symptomatic of the widening differential between expectations and actual increases in living standards, as per capita consumption increases slowed to a crawl after the substantial rises in the first part of the decade.

Soviet foreign economic policies were structured to solve two difficult types of problems associated with Eastern Europe's economic decline: The first is to prevent the economic situation from deteriorating to where it would spark political challenges to local Communist rule; the second to manage crises when they develop.

Crisis Prevention

Many Soviet foreign economic policies during this period appear to have been designed to temper the costs of economic adjustment in Eastern Europe.[10] Soviet energy export policies are a case in point. The Soviets continued to adhere to the Moscow formula for setting oil prices despite the large price rises on the world market in 1979 and

[10]This is not to argue that economic policy instruments have not been used to pursue other Soviet foreign policy goals. Aside from the differences in Soviet treatment of Bulgaria and Romania noted above, the Soviets reportedly express their unhappiness with East European domestic and foreign policies by reducing export supplies or by delays in signing import contracts for goods from major East European industries.

1980.[11] Given the very favorable improvement in their terms of trade in Western markets, they seemed not to need to accelerate the improvement in terms of trade or CMEA markets. Apart from this passive policy, they also increased the quantity of oil exported to the Bloc in the late 1970s even as their extraction costs rose and world market prices were rising.

The Soviets also used energy policies to support the hard currency balance of payments of favored countries. A large share of Bulgarian exports to the developed West have consisted of crude petroleum or refined oil products, over 60 percent in 1983.[12] In the late 1970s four-fifths of these exports were provided by the Soviet Union.[13] The other Eastern European countries were reportedly denied this privilege, although the Hungarians may have exported part of their small domestic production, substituting Soviet oil for home consumption, and other Bloc members may have refined Soviet petroleum and exported these products in 1983 and 1984.[14] The Bulgarians were able to use this advantage to move from the position of the most heavily indebted member of the Bloc in 1975 to a net hard currency creditor in 1984.[15]

Aside from small increases in oil exports in the late 1970s, the Soviets also encouraged the East Europeans to substitute gas for oil. The Orenburg gas pipeline, built under the auspices of the CMEA, has enabled the East Europeans to increase energy imports from the Soviets despite constraints on increased crude oil output in the Soviet Union.

Soviet acquiescence to large ruble trade deficits also appears to be a policy designed to soften the shock of deteriorating terms of trade. Between 1975 and 1982 Soviet terms of trade with Eastern Europe improved by 50 percent (Table 6). 1983 and 1984 saw further improvements. During the early 1980s, years when East European terms of trade deteriorated most rapidly and Eastern Europe suffered the greatest pressure on its hard currency balance of payments, the Soviets permitted the East Europeans to run up increasingly large ruble trade deficits (Table 9). In the late 1970s, Eastern Europe increased its borrowing from both the Soviet Union and the West; only in the early 1980s did Soviet lending rise as Western lending fell.

The Soviet Union has also directly assisted East European countries with their hard currency balance of payments problems. Hungary has

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[11] Dietz, 1984.

[12] Vanous, 1985a.

[13] Vanous, 1985b.

[14] Comments by Soviet economists.

[15] Vanous, 1985a.

Table 9

SOVIET TRADE SURPLUSES WITH EASTERN EUROPE
(Millions of rubles)

Year	Bulgaria	Czecho-slovakia	East Germany	Hungary	Poland	Romania
1970	-128.5	-27.8	181.2	36.7	80.0	-29.4
1971	-100.7	13.4	-11.6	101.0	54.9	-82.5
1972	-102.4	-118.5	-363.9	-74.5	-188.9	-112.1
1973	-93.2	-51.6	-252.5	-112.3	-110.3	-92.1
1974	52.9	-7.3	13.9	-13.3	92.8	-33.8
1975	128.4	127.8	337.2	41.7	41.1	-121.6
1976	87.9	97.7	438.6	181	265.2	-59.5
1977	164.1	243.5	594.9	156	323.8	-18.4
1978	147.0	-56.6	270.8	331	-150.4	-18.0
1979	139.0	179.5	299.5	576	2.0	34.0
1980	221.3	112.2	546.8	696	809.7	5.0
1981	677.6	277.5	371.5	519	1117.0	13.0
1982	596.5	315.6	643.4	594	651.0	-23.0
1983	457.5	451.2	202.1	424	490.0	-91.0
1984	516.4	574.3	114.2	400	772.4	52.0

SOURCES: Hungary—Calculated from the differences among Soviet trade, socialist trade, trade with Yugoslavia, China, and North Korea, and ruble trade in the *Hungarian Foreign Trade Yearbook (Kuelkereskedelmi Statisztikai Evkoenyv)*, various years.

All other countries—Trade deficits recorded in *Vneshniaia Torgovlia SSSR: statisticheskii sbornik*, various years

run hard currency trade surpluses with the Soviet Union since the early 1970s. Although this trade is mutually beneficial, the Soviets have simultaneously permitted Hungary to run deficits in bilateral ruble trade. The value to Bulgaria of reexports of Soviet oil for hard currency was noted above.

The Soviets have also not rushed to harden Eastern Europe's terms of trade. The Eastern Europeans have paid for the increasingly expensive Soviet oil primarily by expanding exports of machinery and other manufactured goods, not "hard" goods. The estimates of Marrese and Vanous indicate that these are precisely the goods on which the differential between world market and CMEA prices is now the greatest.

Crisis Management

The Soviet Union's most difficult problems with Eastern Europe have been periodic popular political challenges to the Communist regimes. The Soviets perceive these challenges as threatening Soviet security: militarily, because they could lead to the dismantling of the Warsaw Pact, the Soviets' Western security buffer; ideologically, because they challenge the thesis of the inevitability of the triumph of Marxist-Leninism; and politically, because they threaten Soviet domination of a bloc of countries.

The Soviets have resolved many of these conflicts through force, either through invasion or through the use of national police and troops. But the Soviets have also used economic policy instruments to stabilize the political situation.

Increased exports, especially of industrial inputs and consumer goods, and acceptance of lower return shipments have been important policy tools for stabilizing crises. For example, after the military takeover Polish leaders lauded the economic assistance the Soviets were providing to get the country back on its feet.[16] The Hungarians also made great mention of Soviet aid following the revolt in 1956.

Trade statistics buttress these assertions. Soviet trade surpluses with Hungary and Poland increased sharply in 1957, following the autumn upheavals in 1956. Surpluses also increased with Czechoslovakia in 1968, and Poland in 1971, 1976, 1980, and 1981 (Table 10). In all these cases the Soviets increased exports to these countries and agreed to reduced imports. The Soviets have also provided infusions of hard currency to stabilize the economic situation. In 1981, although the umbrella did not go up, an edge was extended to Poland. Poland received substantial hard currency loans from CMEA banks and the Soviet Union, besides ruble trade credits.[17]

Trade subsidies as computed by Marrese and Vanous show no change between 1970 and 1971 or 1975 and 1976 for Poland. They did increase by $300 million between 1980 and 1981, but then declined rapidly, falling by $600 million in 1982, the year the Polish economy reached its nadir (Table 2). Subsidy calculations for Czechoslovakia also fell in real terms in 1969, following the 1968 crisis.[18] Thus implicit trade subsidies do not appear to have been used as economic policy instruments for defusing political crises.

Changes in the volume of Soviet oil exports appear to have been used in only a limited fashion for solving political crises in Eastern

[16] *l'Humanité*, June 3, 1985, p. 8.

[17] Goldstein, 1981, p. 567.

[18] Marrese and Vanous, 1983, p. 43.

Table 10

SOVIET TRADE SURPLUSES WITH EAST EUROPEAN COUNTRIES IN CRISIS
(Millions of rubles)

Year	Czecho-slovakia	East Germany	Hungary	Poland
1951		−26.3		
1952		60.9		
1953		19.6		
1954		−121.5		
1956			5.5	66.5
1957			128.6	157.5
1958			34.8	100.5
1967	−13.3			
1968	43.3			
1969	−4.5			
1970	−27.8			
1970				80.0
1971				134.9
1972				−54.0
1975				−30.4
1976				234.8
1977				558.6
1978				408.2
1979				2.0
1980				809.7
1981				1117.0
1982				651.0
1983				490.0

SOURCE: *Vneshniaia Torgovlia SSSR: statisticheskii sbornik*, various years.

Europe. According to Teske, the Soviets agreed to boost crude oil shipments to Poland from 11 to 13 million tons annually in 1977–1980 after the Polish crisis of 1976.[19] However, in 1981 the volume of oil exports to Poland stagnated at the same level as 1980.[20] In 1982 Poland's oil imports were cut by only 1 percent rather than the 10 percent in Czechoslovakia, the GDR, and Hungary, but in 1983 they were cut an additional 3 percent.

[19]Teske, 1980, p. 72.

[20]*Rocznik Statystyczny Handlu Zagranicznego*, 1981, 1982.

The 10 percent reduction in oil exports to the other countries indicates limited Soviet willingness to use energy deliveries to bail out allies in crisis. Eastern Europe's hard currency balance of payment crisis peaked in 1982: Poland and Romania defaulted on their loans, and Hungary and East Germany escaped rescheduling by a whisker. Yet this is the year in which the Soviets reneged on their commitment to keep oil shipments level for the 1981–1985 five-year plan.

The Soviets also appear not to manipulate oil prices to bail out countries in distress. According to Vanous, prices paid by Poland for Soviet oil have not been reduced in years of unrest and have generally remained higher than those for Bulgaria, Czechoslovakia and the GDR.[21]

To sum up, the Soviet Union manipulates trade and credit flows to solve short run crises in Eastern Europe. Its most important economic policy instrument for crisis management appears to be to allow the troubled country to let its trade balance deteriorate, both by increasing imports and decreasing exports. Implicit trade subsidies appear to have no role in solving short run crises. Soviet willingness to accept less favorable terms of trade within the CMEA than in nonsocialist trade appears to stem from its desire to temper the effect of higher world market energy prices on the East European economies and thereby forestall unrest in the Bloc. The differences in terms of trade within the CMEA and on the world market are not just a consequence of a Soviet decision to give Eastern Europe a break on energy prices. These differences also stem from a Soviet decision to adhere to the system of pricing and trade within the CMEA that the Soviets have preferred for political, military, and ideological reasons.

[21]Vanous, 1981, p. 554.

V. CAUSES OF EASTERN EUROPE'S ECONOMIC DECLINE AND THE EFFECTIVENESS OF SOVIET POLICIES

Despite Soviet efforts to soften the blow, Eastern Europe's adjustment to higher energy prices and reduced access to hard currency capital markets has been painful. Many of the problems that led to economic decline continue to plague these countries. This section discusses these problems and assesses the way Soviet policies have exacerbated or mitigated them.

ENERGY CONSTRAINTS

As in the West in the 1960s and early 1970s, Eastern European output growth has been strongly correlated with increased consumption of energy. Limitations on Soviet energy imports have been a major cause of Eastern Europe's economic slowdown. Higher relative prices for energy have also led to declines in consumption and investment, as more goods and services are exported to pay for stagnating energy imports.

One reason energy has been a binding constraint on economic growth in the region is that Eastern Europe is a profligate user. In 1982, per capita consumption of energy ran 28 barrels of oil equivalent, compared with 25 for the countries of the Common Market, which boasted a per capita income 30 percent higher. Even more sobering is the record of energy conservation since 1979. Common Market countries have reduced total energy consumption by over 10 percent, in a period when GNP grew by only .53 percent per year in the Common Market. Energy consumption in Eastern Europe increased 0.4 percent, while GNP growth in Eastern Europe averaged only .86 percent, even when Poland is omitted from the total.[1] Industry is the greatest wastrel. In 1978 West Germany consumed from 28 to 56 percent less energy per dollar of industrial output than the members of the Bloc.[2]

Eastern Europe's thirst for energy is a product of industrial structure and poor incentives for conservation. In accordance with Stalinist industrialization policies, all the countries in the region poured large shares of investment into such energy-intensive heavy industries as

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[1]CIA, *Handbook*, 1985.

[2]Hannigan and McMillan, 1983, p. 31.

steel and, more recently, petrochemicals. These industries, especially steel, use more energy per unit of output than similar industries in the West. As a consequence, industry consumes more than half of total energy in Eastern Europe, whereas in the United States it consumes less than 30 percent.[3] Moreover, even in less energy-intensive sectors, East European machinery tends to consume more energy per unit of output than in the West.

Until recently East European managers had few incentives for conserving energy. In countries that stressed output or sales targets, energy conservation had a low priority. Even in Hungary, the most parsimonious consumer of energy in the Bloc, where managers are encouraged to increase profits and special programs were introduced to reduce energy consumption, consumption has not fallen rapidly. Managers found that they could pass along higher energy costs to consumers, because of excess demand. East Germany has had some success with emphasizing reductions in energy use in plan targets, but here too performance has lagged behind market economies in the West. Moreover, along with Czechoslovakia, East Germany has had one of the highest energy to output ratios of any country in the world.

Conservation efforts have not been helped by low relative energy prices. Domestic energy prices in Eastern Europe have risen much more slowly than prices on world markets, and energy, with the partial exception of gasoline, remains fairly cheap in most Bloc countries.

The East Europeans have faced the same set of distorted incentives in international trade. Since the price of energy to Eastern Europe was less than that to the West, Eastern Europe found it logical to specialize in energy-intensive exports. Major exports include iron and steel products, petrochemicals, and refined oil products.[4] As ruble energy prices have risen, however, their comparative advantage in these products has dwindled. Moreover, these exports are facing increasing competition from lower cost third world suppliers, including OPEC countries with cheap indigenous energy supplies, and from Western manufacturers with excess capacity because of the fall in domestic demand for their products.

Soviet policies have probably exacerbated the present energy problems in the region. By deferring increases in the price of its energy exports, the Soviet Union made the production of energy-intensive products appear more attractive than they otherwise would have been. Lower prices for energy also made investments in energy-intensive

[3]Dienes and Economou, 1980, p. 40.

[4]In 1981, with the exception of Hungary, all the members of the Bloc relied on exports of energy or energy-intensive manufactures (SITC 3 and 6) for over 40 percent of their exports to the OECD (Boot, 1985).

industries appear more profitable. For example, in 1978 iron and steel production, construction materials manufacture, and chemicals, very energy-intensive industrial sectors, took a higher share of total industrial investment than they did in 1965 in every country in the region but Czechoslovakia.[5] As the Soviets increased the ruble price of oil, these investments became technologically obsolescent—in other words, unprofitable. Moreover, the Soviets have continued to purchase energy-thirsty East European machinery, providing little incentive for technological innovations designed to reduce energy consumption.

RUBLE BALANCE OF PAYMENTS CONSTRAINTS

As can be seen from Table 6, Eastern Europe's terms of trade with the Soviet Union have plummeted since 1974, primarily because of the increased cost of energy imports. This decline has slowed as of 1985, but the process continues.

The deterioration in terms of trade has been expensive. By 1983 Eastern Europe was exporting 62 percent more goods by volume to the Soviets than in 1975. Imports from the Soviet Union rose by only 21 percent.[6]

The Soviet Union has, however, shielded Eastern Europe from the full brunt of the decline by permitting them to run ruble trade deficits (Table 9). The trade credits that financed these deficits have been substantial. In 1982 they represented 2.2 percent of Hungarian and 0.9 percent of Polish utilized national income. This sum is roughly equivalent to the entire rise in Hungarian net material product in 1982. The lack of coefficients to convert the *deviza* currencies (units of account used by East European statistical offices to record trade flows) to domestic currencies makes it difficult to make similar calculations for the other countries in the Bloc. However, Bulgaria, the GDR, and Czechoslovakia have smaller economies than Poland's, and in 1982 and 1983 their trade deficits were of approximately the same size, so Soviet credits probably allowed utilized national income to be 1 to 2 percent greater in these countries, also.

Not only have these credits forestalled further declines in utilized national income in the Bloc, but they have been offered at subsidized rates. These interest rate subsidies have been a significant additional means of support to the East Europeans, as shown in Table 4.

The Soviets have also cushioned the shock of adjustment by permitting the East Europeans to pay for more expensive energy imports with

[5] *SEV*, 1979.

[6] *Vneshniaia Torgovlia SSSR: statisticheskii sbornik*, 1974, 1983.

increased exports of manufactures rather than "hard" goods. The share of machinery in Soviet imports from socialist countries has increased from 40.2 percent in 1974, the year before large increases in Soviet energy prices, to 47.2 percent in 1983.[7]

Soviet indulgence has been less marked for some countries in the mid-1980s. The GDR significantly reduced its trade deficit with the Soviet Union in 1984, and Hungary followed suit in 1985. Poland and Bulgaria have reportedly experienced similar pressure.

In contrast to Soviet energy export policies, Soviet credit policies have had few detrimental repercussions. Export credits have permitted the East Europeans to maintain higher standards of living than would otherwise be the case. They were also increased at a time when all the countries found it difficult to renew Western loans.

INVESTMENT CYCLES

Centrally planned economies have been shown to be subject to investment cycles.[8] Overambitious plan targets supplemented by "soft budget" constraints induce enterprises and ministries to start too many investment projects. As projects proliferate, demands on domestic construction services increase. The hard currency balance of payments begins to deteriorate as potential exports are diverted to investment projects and demand for hard currency imports rises. The rate of return on projects then falls as completion times drag out because of shortages. At this point the central authorities generally step in and ban further projects until the backlog eases and balance of payments equilibrium is restored.

In Eastern Europe in the 1970s hard currency loans permitted the leaderships to extend the cycle. Hungary, for example, recorded increases in investment every year between 1969 and 1979; in the previous 15 years, the central authorities had found it necessary to reduce investment every three years. Western loans also permitted these countries to increase the percentage of utilized national income devoted to investment. Poland devoted 41.7 percent of utilized national income to accumulation in 1976; Romania devoted 36.3 percent on the average between 1976 and 1980. These ratios surpassed the levels recorded in the industrialization drives of the early 1950s.

Like previous investment booms, this one ended badly. Incremental capital/output ratios fell. In Romania and Poland especially, but also Hungary and Czechoslovakia, the investment front was too broad. Too

[7] *Vneshniaia Torgovlia SSSR: statisticheskii sbornik*, 1974, 1983.

[8] Bauer, 1981; Tyson, 1984, p. 21.

many projects and too many industries were involved.[9] As the construction industry was stretched thin and imports mounted, inflationary pressures increased and the hard currency balance of payments deteriorated. The central authorities stepped in to curb imports and new investment projects. Given the magnitude of the increases in investment and the severity of the balance of payments problems, the central authorities had to react much more harshly than previously. Investment cuts were very severe, declining by over 50 percent in Poland and by over a quarter in Czechoslovakia, the GDR, Hungary, and Romania. Even Bulgaria reduced investment (Table 8).

The effects of Soviet policies on the East European investment boom are ambiguous. Trade credits permitted smaller reductions in investment than otherwise would have been necessary in the late 1970s. But Soviet demands for investment in the Orenberg pipeline and other CMEA target programs increased the demand for investment goods in the Bloc. Furthermore, increases in East European exports, occasioned by the deterioration in terms of trade with the Soviet Union beginning in the mid-1970s, generally consisted of investment goods. These exports exacerbated domestic investment bottlenecks. Despite these problems, Western banking practices probably contributed more to the boom than Soviet foreign economic policies.[10]

HARD CURRENCY BALANCE OF PAYMENTS CONSTRAINTS

In contrast to previous investment booms, however, this one left something besides hundreds of unfinished, poorly planned projects. It also left mountains of hard currency debt, which has made the cost of adjustment much more expensive. Not only has the end of the cycle been marked by cuts in investment, but consumption also fell in every country but Bulgaria, as imports were slashed and exports pushed to close hard currency trade deficits.

Overinvestment, especially in Romania and Poland,[11] contributed to Eastern Europe's hard currency debt crisis, but it was not the only cause. Declines in Eastern Europe's hard currency terms of trade provided another reason for increasing hard currency loans. The deterioration varied from country to country. Romania and Poland actually saw their terms of trade improve in some years. Bulgaria,

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[9]Brada and Montias, 1984; Jackson, 1985; and Fallenbuchl, 1982.

[10]Western governments also facilitated the investment boom by providing several billion dollars worth of credit subsidies to Eastern Europe (Kohler et al., 1984).

[11]Tyson, 1984; Fallenbuchl, 1982.

Czechoslovakia, the GDR, and Hungary suffered the greatest falls; Bulgarian terms of trade with non-CMEA countries fell 12 percent between 1970 and 1984;[12] Hungarian terms of trade fell 15 percent. These declines were significant. Tyson traces most of the increases in Hungary's hard currency current account deficit in the 1970s to this deterioration.[13] Deterioration slowed in the early 1980s, except for Poland and Bulgaria, which derive a large share of their hard currency earnings from exports of energy.[14]

Flaws in the economic systems were also an important factor in Eastern Europe's hard currency debt crisis. The lack of incentives to increase hard currency exports and reduce the use of hard currency imports was an important factor in Poland's inability to close its hard currency trade deficit in the late 1970s.[15] Central authorities responded to the consistent missing of hard currency export targets by increased borrowing. Czechoslovakia has also found it difficult to induce managers to increase hard currency exports of manufactures. Moreover, managers in these countries are well aware of impending import curbs caused by balance of payments pressures. Because curbs are administrative rather than based on prices, they know that needed imports may well become impossible to get during periods of austerity, so they stock up on raw materials and intermediate goods. For this reason, imports often surge just before curbs are imposed. These surges can greatly affect the balance of payments. Tardos estimates that between 1973 and 1977 inventory accumulation accounted for over 60 percent of Hungary's aggregate hard currency trade deficits.[16]

The consequences of these systemic flaws are most apparent in Eastern Europe's hard currency trade in manufactures. Increased exports of manufactures produced on Western machinery imported on credit were to pay for the hard currency loans contracted in the early and mid-1970s. Manufactured exports were to substitute for exports of raw materials and food, which faced capacity constraints and rising demand on domestic markets. The policy of substitution failed. In 1970 machinery (SITC 7) constituted 10.5 percent of East European exports to the OECD; by 1981 this had risen to only 12.5 percent, and the two leading manufacturing countries in the region, the GDR and Czechoslovakia, actually saw machinery fall as a percentage of total

[12] Vanous, 1985a.

[13] Tyson, 1984, p. 47.

[14] A substantial share of Romania's hard currency imports consists of petroleum, so declines in prices of Romanian refined oil products have been offset by the fall in prices it pays for crude oil. Romania's terms of trade did not deteriorate markedly.

[15] Crane, 1983.

[16] Brown and Tardos, 1980, p. 274.

exports to the OECD. Moreover, although exports of manufactures (SITC 5–8) increased, market shares stagnated: In 1981 Eastern European manufactured exports took 1.2 percent of OECD import markets, the same percentage as in 1970. The extent of Eastern Europe's failure to successfully increase hard currency exports of manufactures is best illustrated by a comparison with a group of newly industrialized countries (NICs) of the third world.[17] During the same period of time, the OECD market shares in imports of manufactured goods from this group increased from 2.8 percent in 1970 to 7.4 percent in 1981.[18] Differences in market share growth in machinery exports to the OECD were even more marked. Between 1970 and 1981, Eastern Europe saw its share of the OECD market stagnate at 0.6 percent; the group of NICs saw their market share rise from 1.2 to 5.0 percent.[19]

Systemic factors have also increased the cost of adjustment. The East Europeans, with the partial exception of East Germany, closed their current account deficits by cutting imports rather than increasing exports. Because imports were reallocated administratively rather than through markets, bureaucratic clout determined the new recipients. In market systems, as imports become more expensive, buyers who can most easily find substitutes are the first to dispense with imports, thereby lessening the effect of the import decline. Furthermore, because devaluation is the primary mechanism used to close the current account, producers of import substitutes and exporters find their products are more profitable and expand output. The centrally planned economies of Eastern Europe lack these built-in reallocative mechanisms. Consequently, bureaucrats failed to reallocate imports efficiently, and economic output fell more than would otherwise have been the case.

The Soviet Union did not spread a financial umbrella over Eastern Europe during the 1981–1982 debt crisis, but in general its policies have mitigated the effect of balance of payments constraints. The Soviets have accepted increased shipments of machinery—a commodity group Eastern Europe has great difficulty in selling on hard currency markets—for more valuable Soviet oil, rather than demanding proportional increases in shipments of "hard" goods. From some countries, most notably Hungary, the Soviets have also purchased above-plan exports of certain "hard" goods for hard currency rather than transferable rubles, thereby providing those countries with an additional hard

[17]Poznanski, from whom these data are taken, includes Brazil, Mexico, Argentina, Hong Kong, Singapore, South Korea, and Taiwan in this comparison group.

[18]Poznanski, n.d., p. 152.

[19]Poznanski, n.d., p. 153.

currency market. In one form or another, the East Europeans have been able to reexport Soviet energy by incorporating it into energy-intensive production. Ruble trade deficits were also allowed to rise for most countries during the hard currency debt crisis of 1982. However, the incorporation of hard currency imports into East European exports to the Soviet Union has exacerbated hard currency balance of payments problems.

FACTOR PRODUCTIVITY AND TECHNOLOGICAL CHANGE

I have traced Eastern Europe's economic problems to increases in energy prices and the concomitant deterioration in terms of trade with the Soviet Union, overinvestment, and overborrowing, which led to a hard currency balance of payments crisis. Although many of these causes are in turn products of policy mistakes, especially decisions on the level of investment and foreign borrowing, the recent economic malaise and the region's poor prospects for the future are the result of a deeper problem: These economies have been slow to adapt to new conditions.

Adaptation depends to great degree upon technological change, the process of creating and disseminating new methods of production or new products. These changes lead to increases in factor productivity, the driving force of increases in per capita incomes in the West since the beginning of the industrial revolution.

Although governments often attach great importance to technological change, especially because they are often judged by the performance of their economies, the concept is difficult if not impossible to measure. Poznanski has attempted to use several indexes to measure Eastern Europe's technological performance in the 1970s. He finds that in sharp contrast to the NIC group, Eastern Europe has failed to narrow the gap in innovation and productivity it faces with the West. Such indicators as world market shares and export unit values of manufactured goods have fallen far behind those of the NICs.

As signals of technological lag, East European leaderships often emphasize the introduction of new, highly visible products in the West, which the East European economies are incapable of producing, and differences in productivity and energy consumption per unit of output. Their typical response to what they perceive as a widening gap has been the introduction of crash programs stressing the development of, for example, industrial robots or biotechnology. These governments

concentrate on the parts of the system and often ignore how these parts are put together to produce desired goods and services.

Poznanski argues that it is the system itself, not individual components, that has stopped the Eastern Europeans from emulating the NICs. Endemic excess demand and emphasis on output rather than profits provide little incentive for firms to introduce new technologies. Large bureaucratic hierarchies slow decisionmaking and inhibit researcher and managerial initiative. Moreover, the absence of scarcity pricing and incentives for increasing profits leads bureaucrats to rely on technical rather than economic indicators when choosing among competing technologies. According to Poznanski, these features of the decisionmaking system, coupled with strictures on foreign investment, have drastically reduced the rate of technological change.

More aggregative studies show contradictory trends in productivity. Although Eastern Europe has failed to close the productivity gap with the West, Whitesell (1985) indicates that a slowdown in the rate of factor productivity growth has probably not been a cause of economic decline. Whitesell estimated production functions for the Soviet Union and the countries of Eastern Europe for the period between the late 1950s and 1980. He finds a declining rate of factor productivity growth in the Soviet Union in the 1970s, but no change for the countries of Eastern Europe. Kemme (1984) made similar estimates for Polish industry. He found an increase in the rate of factor productivity growth in industry between 1973 and 1978, during the Polish investment boom, but three important branches recorded declines in the rate of productivity growth: metallurgy, electrical and mechanical machinery, and chemicals. Another study shows Polish productivity plummeted in 1980 and 1981 as the economic crisis gathered steam. Much of the decline was attributed to shortages of imports, however.[20] Tyson, using other measures of productivity, has found a decline in factor productivity but traces this more to the effects of balance of payments adjustment than to a secular decline.[21]

The economic slowdown can also be traced to a slowdown in rates of increase of factor inputs, primarily labor, but also capital. Lower birth rates in the 1960s have provided few additions to the labor force in Eastern Europe in recent years. Reductions in investment in all the countries have slowed additions to the capital stock. Balance of payments constraints have also limited capacity utilization. Poland, Romania, and Czechoslovakia have recorded industrial slowdowns due to power shortages, in part occasioned by cuts in imports of Soviet oil

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[20]Kemme and Crane, 1984.

[21]Tyson, 1984, p. 25.

or increased exports of domestically produced fuels. Shortages of imports of components have also limited capacity use, especially in Poland.[22]

Nonetheless, Eastern Europe's inability to close the technological gap with the West has exacerbated present problems. Diminished competitiveness has led to the loss of export market shares and turned East Bloc dreams of export-led growth to dust. The failure to achieve the same rates of factor productivity as the West using imported Western machinery contributed to Poland's difficulties in servicing its debt. Continued problems in introducing more energy-efficient technologies have made energy supplies a binding constraint on economic growth.

Poznanski traces Eastern Europe's technological backwardness to the economic system the Soviets have imposed on the region, but Soviet foreign economic policies in the 1970s bear little of the blame. Trade credits and subsidies eased hard currency balance of payments pressures, permitting higher imports of Western machinery embodying new technologies. The Soviets also appear to have acquiesced to expanded Bloc trade with the West and increased imports of Western machinery. CMEA specialization agreements provided a framework for concentrating research, although they may have tended to lock enterprises into traditional technologies.

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[22]Kemme and Crane, 1984.

VI. THE SOVIET UNION AND THE ECONOMIC FUTURE OF EASTERN EUROPE

WHY THE SOVIETS WANT A CHANGE

New Soviet Policy Goals

The Soviets' willingness to bear large opportunity costs in their economic relations with Eastern Europe appears to be wearing thin. The conference communique of the 1984 CMEA summit meeting "Statement on the Main Directions of Further Developing and Deepening the Economic, Scientific and Technical Cooperation of the CMEA Member-Countries" listed several new goals for the CMEA. Of particular interest are those contained in the following paragraphs:

> In order to create economic conditions ensuring the carrying out and continuation of deliveries from the Soviet Union of a number of types of raw materials and energy sources to satisfy import requirements in amounts determined on the basis of coordination of plans and long-term accords, the interested CMEA member-countries, within the framework of agreed-upon economic policy, will gradually and consistently develop their structure of production and exports and carry out the necessary measures to this end in the field of capital investments, reconstruction and rationalization in their industries, with the aim of supplying the Soviet Union with products that it needs—in particular, foodstuffs, manufactured consumer goods, some types of building materials, and machinery and equipment that is of high quality and meets world technical standards.
>
> Mutually acceptable decisions on these questions will be worked out with consideration for the objective economic conditions of the USSR and the other CMEA member countries, as well as for the structure of these countries' production and mutual trade turnover.

This statement appears to have been written by Gosplan rather than the Soviet foreign policy establishment. The final document implicitly contains the following Soviet policy goals:

1. A reduction in East European trade deficits.[1]
2. Continued improvement in Soviet terms of trade, especially through deliveries of better quality goods for Soviet exports of raw materials.
3. Increased East European participation in the development of Soviet natural resources.[2]
4. Restructuring the East European economies so that they are better attuned to Soviet needs.

The Soviets have also put the East Europeans on notice that future supplies of raw materials and energy will depend on Soviet domestic demand and the availability of supplies.

Soviet Reasons for Wanting a Change

The Soviets' new emphasis on their own economic needs within the CMEA is probably a product of two factors. The first and most important is the Soviet economic slowdown that characterized the 1980s, caused in part by a decline in the rate of increase in capital and labor inputs, the primary sources of growth in the Soviet economy over the past several years. More worrisome from the Soviets' point of view has been a decline in factor productivity, which has been traced in part to transportation bottlenecks, especially problems with the railroads, the accelerated depletion of natural resources coupled with rapidly increasing costs of developing new deposits, and the concomitant shortages of raw materials.[3] These problems have been worsening and no easy solutions are in sight.

Changes in trade and credit policies toward Eastern Europe would mitigate these problems. Reductions in energy and raw materials deliveries, if coupled with unchanged deliveries to the West, would ease pressures on supplies in the Soviet Union and diminish demand for investment in the development of new deposits. Improvements in imported machinery from the Bloc, which now account for a considerable share of Soviet machinery investment, could help reverse the decline in factor productivity.

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[1]The document contains the passage, "planning and foreign-trade agencies . . . should coordinate . . . measures to increase mutual deliveries of goods, the main proportions and structures of reciprocal trade turnover," which I interpret as calling for balanced trade.

[2]The "Statement" goes on to say, "They [the member countries] will carry out appropriate measures, including the participation of interested countries in capital investments and in providing exporter countries with other economic incentives on a bilateral or multilateral basis by the interested countries." Policy goal three seems implicit in this passage.

[3]Schroeder, 1985; and Gustafson, 1985.

The second potential factor is the lack of effectiveness of past Soviet policies. Eastern Europe has been a flawed asset in recent years.[4] Trade credits and favorable terms of trade have been rewarded with civil strife in Poland, greater foreign policy independence in Hungary and the GDR, and continued Romanian unwillingness to conform to the Soviet foreign policy line. Economic growth in the region has been slow, Poland has had to reschedule its debts with the Soviet Union as well as with the West, and the quality and technological levels of East European manufactured exports now lag those of the NICs. The Soviet Union may rightly be wondering what benefits past economic assistance have brought.

Soviet Potential for Achieving These Goals

The easiest Soviet goal to achieve will be closing transferable ruble trade deficits. With the exception of Poland, and in 1985 Hungary, the Bloc is now running hard currency current account surpluses. Hard currency balance of payments problems are no longer a compelling argument for continued Soviet trade credits. The acquiescence of the East European citizenry to stagnating living standards has also weakened arguments for subsidies to forestall unrest. The Soviets may now believe that a crack of the whip does a far better job of controlling dissent than improvements in the standard of living. The slowdown in Soviet output growth, reductions in hard currency imports, and continued excess demand imply that Eastern Europe will continue to find Soviet markets for almost any goods they may export, so lack of demand will not be a constraint. Moreover, the Soviets appear to have no intention of increasing shipments to Eastern Europe, so balancing ruble trade appears feasible.

Further hardening of Soviet-East European terms of trade is unlikely, unless world market prices of oil rise. In 1985 at the official dollar/ruble exchange rate, Soviet oil export prices to Eastern Europe were roughly on a par with world market prices. In fact the recent decline in world market prices of oil should lead to a reduction, even if with a lag, in CMEA prices, which would improve East European terms of trade with the Soviets. Machinery prices continue to be relatively higher in CMEA trade than on the world market, but, as argued above, the way in which these prices are negotiated imparts an upward bias that will not be easy to eliminate. Moreover, at a time when the East Europeans are being pushed to balance their trade, it is difficult to imagine that Soviet trade negotiators would start to refuse East European export offers because of delivery or quality considerations.

[4]Brown and Johnson, 1984; Terry, 1984.

The current decline in world market oil prices may also contribute to closing Eastern Europe's trade deficit with the Soviets, because the Soviet Union will probably need to reduce ruble oil exports if production and prices continue to fall. Needless to say, this will not be a welcome development for Eastern Europe.

The Soviets have also requested more food, building materials, and high quality manufactures than in the past. Increasing expor s of these goods will be difficult, except possibly for food, because production is often costly and faces tight capacity constraints. This request could perhaps be fulfilled, but it would entail further cuts in domestic consumption or diversion of hard currency exports to the Soviet market.

The East Europeans have agreed to participate in the construction of a new natural gas pipeline, which will rival the Orenberg project in size. They are also involved in the construction of two nuclear power plants in the Ukraine, which will export electricity, and an iron ore processing plant at Krivoi Rog.[5] I am skeptical, however, that the East Europeans will agree to many more such investments in the Soviet Union. Domestic pressures for investment are far too strong. Over the past five years, as investment has fallen a backlog of investment needs has piled up. Machinery has become even more obsolete, and infrastructure bottlenecks in communications and transportation systems have tightened. Excess demand for housing remains endemic. Given the level of bureaucratic and popular pressures for domestic investment, as manifest in the increases in investment incorporated into the 1986–1990 five-year plans, and limited prospects for rapid growth, it is highly unlikely that Eastern Europe will invest much in the Soviet Union outside of projects to which the countries have already agreed.

The Soviet demand that Eastern Europe restructure its economy more in line with Soviet needs sounds like a bad joke. With the exception of Romania, Eastern European economic development has long been integrated with Soviet needs. Poland's shipbuilding industry, East Germany's oil equipment industry, the Hungarian bus industry, and Czechoslovakia's nuclear reactor industry are among the most important in these countries. They all export substantial percentages of their total output to the Soviet Union; in the case of Hungarian buses the share exceeds three quarters. They all face problems in marketing products produced in these industries in the West. The new Soviet demands really reflect dissatisfaction with the quality and variety of products produced from past East European attempts to satisfy Soviet demands.

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[5] Lavigne, 1984, p. 23.

The problem is then one of improving variety, quality, and delivery times rather than restructuring East European economies away from a hypothetical bent toward Western markets. Soviet prospects for succeeding in this endeavor are problematic. The same sluggish pace of technological change exists in such new industries as computers and robotics as plagued motor vehicles and machine tools in the past. The causes of Soviet dissatisfaction are systemic, not simply poor planning.

EAST EUROPEAN POLICY ALTERNATIVES

Although the declines in ruble and hard currency terms of trade have moderated, energy shortages, hard currency debts, uncompleted investment projects, and low factor productivity continue to constrain economic growth in the region. As most of the economies emerge from recession, reductions in Soviet subsidies confront East European policymakers with some unpleasant choices. Three of the more important will be discussed below:

- Redirecting trade toward the Soviet Union.
- Reforming the economic system to improve factor productivity.
- Increasing investment to accelerate growth.

Redirecting Trade

One possible solution to declining levels of Soviet assistance is to redirect trade from the West to the Soviet Union and the rest of the CMEA. Theoretically, this could satisfy Soviet demands for better terms of trade and induce the Soviets to increase energy exports, thereby loosening this constraint on growth. It could also loosen the hard currency balance of payments constraint, if imports from the CMEA could substitute for hard currency imports.

This policy appears to be possible only in theory. Although the Poles and Czechs have stated that they are pursuing such a policy of redirecting trade from the West toward the CMEA, in practice the Eastern Europeans have tried to increase trade with the West as much as possible. Every country provides extra bonuses for managers of enterprises that increase hard currency exports or exceed hard currency export targets, and every country emphasizes increasing hard currency exports in annual plans.

Bloc trade patterns also fail to indicate a turn to the East. Exports to the Soviet Union have risen, but imports from the Soviet Union to the Bloc have more or less stagnated. Bulgaria, the GDR, and Hungary have reduced their share of total trade conducted within the

CMEA since 1979; the GDR has increased the share of its total exports going to the developed West by over nine percentage points during this period.[6] The share of Polish and Romanian imports originating in the CMEA has risen dramatically. But this change is primarily a consequence of balance of payments crises. Western suppliers simply stopped shipments and have yet to resume them on credit. Thus it appears the Poles have made a virtue of necessity by declaring that they want to rechannel trade toward the East; actual policies for reducing East European trade with the West have yet to be implemented.

These countries emphasize exporting to the West, because hard currency imports are vital for the operation of their economies. Agricultural products no longer take such a large share of hard currency imports. Raw materials, components, and semi-manufactures, necessary inputs for industrial production, now constitute the overwhelming share of these imports. As shown by the case of Poland and Romania, when these imports fall, output plummets.

The GDR, Hungary, Poland, and Romania also have to export more to service their hard currency debts. The last three remain overborrowed in the sense that the pressure of servicing hard currency debt is a binding constraint on output growth.[7] The GDR's debt burden is somewhat more manageable, but it too faces balance of payments constraints. Hard currency debt service will necessitate increasing hard currency exports for the foreseeable future.

Another reason why the East Europeans are unlikely to deemphasize trade with the West is the realization that neither the Soviet Union nor the other members of the CMEA can provide the quality or level of sophistication of Western-made capital equipment, nor do they possess the requisite licenses or technical expertise. Without access to Western technologies, most of the technical elites believe that the productivity gap between East and West will widen. Although machinery imports have fallen, if investment is to rise once again, Western imports will play an important role, otherwise much of the new investment will be obsolescent upon installation.

Declines in Soviet oil production and world market prices of oil also make a turn to the East unlikely. The East Europeans have responded to past Soviet reductions in oil shipments by substituting Soviet gas, domestic sources of brown coal, and nuclear energy. As these alternatives are exhausted and world market prices fall, the East Europeans may find purchasing oil on the world market a practical alternative, especially since hard currency balance of payments pressures have

[6] *SEV*, 1980, 1984.
[7] Crane, 1985.

eased somewhat. This implies a greater, not lesser, emphasis on Western markets.

A final reason for a continued emphasis on Western markets is the stimulus provided by Western competition. Hungary and the GDR especially see the ability to market in the West as a prerequisite for improving the competitiveness of their domestic industries. The very task of marketing in the West teaches their firms new management and production techniques that they hope will carry over into the domestic economy.

The Soviets may, however, apply pressure on Eastern Europe to reduce trade with the West. Soviet attitudes on trade between Eastern Europe and the West are ambiguous. On the one hand, the CMEA summit communique and the speech by Romanov cited above warn of the dangers of becoming overly dependent on the West. On the other hand, Soviet leaders continue to speak of the potential benefits from expanding East-West trade.[8] Even if the Soviets would prefer less trade, it is difficult to see how they would enforce such a policy when they are curbing exports of "hard" goods. Moreover, their emphasis on regional integration through plans rather than markets is unlikely to be any more successful in facilitating trade in intermediate goods, the most important East European imports from the West, than it has in the past.

Systemic Reform

Bornstein (1973) cautions that "reform" is used in two contexts in Eastern Europe. The first he classifies as administrative decentralization: the devolution of decisionmaking power to lower levels of the economic hierarchy. The second is economic decentralization, which implies replacing administrative allocation of resources with allocation through markets in which independent enterprises respond to such indirect instruments as prices, tax rates, and subsidies. This definition is adopted in the discussion below.

Western scholars, probably more than the East Europeans, often tout economic reform as a solution to the low level of productivity and slow rate of adaptation seen in these countries. Observation of the Yugoslav and Hungarian reforms indicates that the process is more difficult and the economic side-effects more damaging than had generally been imagined by Western scholars. Nonetheless, half of the East European countries are currently attempting to reform their economic systems.

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[8] "USSR's Tikhonov Cited," *FBIS*, 26 June 1985.

These countries see systemic reform as a means of accelerating factor productivity growth, improving hard currency export performance, and lowering energy consumption/output ratios. If Soviet subsidies are reduced, economic reform should also facilitate increasing ruble exports and adjusting to stagnating deliveries of energy and raw materials.

Past performance of reformed centrally planned economies gives some grounds for hope that economic decentralization will loosen the constraints on economic growth in these countries. Hungary has been the most efficient user of energy in the Bloc. Poznanski argues that it has also been one of the most successful technological innovators. Hard currency export performance in Hungary and Yugoslavia has also been better than that of most other centrally planned economies, although hard currency debt problems have been as severe, or more so. Thus, successful reform could provide an answer to a decline in Soviet subsidies.

The Reformers. Bulgaria, Hungary, and Poland made considerable changes in their economic systems in the 1980s. They have concentrated on increasing the decisionmaking power of managers and providing incentives to increase profits, rather than concentrate on increasing output or sales. This new emphasis on lower level decisionmaking has necessitated revision of the price system. All three countries purport to link domestic prices of raw materials and other tradeables with world market prices. Interest rates are supposed to govern allocations of credit to some extent.

Another area of change has been the private sector. Some restrictions on private enterprise have been removed, and all three governments have stated their commitment to the continued existence of some private enterprise, which ostensibly provides entrepreneurs with a government commitment to regulatory stability.

Despite these changes, the prospects that reform will be successful is bleak for Bulgaria and Poland. Only Hungary appears to have introduced a far-reaching and coherent package of changes. In Hungary the new measures, although sometimes inconsistent, are directed at the major flaws in the 1968 mechanism: the lack of competition on the domestic market and the "soft" budget constraint, ministerial willingness to finance poor investment decisions and loss-making operations. The Hungarians have tried to increase competition by breaking up large firms and trusts, encouraging firms to set up subsidiaries or subcontract out work to small cooperatives organized inside the firm. They have also encouraged private firms to enter markets by lessening tax burdens and permitting them to hire more employees than in the past. They have attempted to increase enterprise independence by replacing ministerial supervision of most firms with a workers' council,

which elects the general manager. The banking system is also being decentralized, and the rudiments of a capital market are being constructed. These measures ought to "harden" the enterprise budget constraint and make managers more responsive to the world market.

The outlook for the Bulgarian reform is less bright. The Bulgarians have introduced the most incoherent reform of the three. Compulsory plan targets continue to exist with incentives to maximize profits. This proviso was one of the crucial weaknesses in the Polish changes in the economic system introduced in the early 1970s, when managers were told to maximize value-added and fulfill plans. Because managers could not do both simultaneously, the hoped for improvements in efficiency did not materialize, especially as managers gave plan target fulfillment precedence over increases in value-added. Cost-plus pricing continues to be the favored mode for setting prices in Bulgaria; markets are explicitly rejected. Such a system provides the wrong signals to firms that produce exports or use imports and is unlikely to lead to improvements in factor productivity.

The 1982 Polish reform outline contained some inconsistencies[9] but was far more coherent than the Bulgarian reform blueprint. Market forces were to have an important role in price formation, exports and imports were to be primarily regulated through the exchange rate, and enterprises were to make decisions on output and investments more or less independently from the center.

This reform provides the only plausible hope for Poland to resolve its hard currency balance of payments problems and improve living standards.[10] Proper implementation could lead to increased exports, more rational use of investment, and more efficient use of energy, thereby loosening many of the current constraints on economic growth. It would also permit Poland to weather the elimination of Soviet trade credits with little effect on the economy.

Unfortunately, the Poles have done a poor job of implementing the reform. Central allocation of resources has been preserved by "temporary" measures. Central control of enterprises continues through decisions on the allocation of inputs, special tax and subsidy dispensations, and the reemergence of associations, industrial organizations that allocated investments and inputs in the 1970s. Price controls have been reimposed in response to high rates of inflation, which can be traced to the creation of money to finance the national budget deficit. Budget deficits, in turn, are the result of the willingness of the

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[9]Price controls were to remain in many industries, and fixed prices were to be set for many inputs. This ruling sharply limits the effectiveness of prices as a guide to what to produce and in what to invest.

[10]Crane, 1985.

authorities to provide open-ended subsidies to many industries and plants. Incentives to increase output rather than profits have been reintroduced through employment taxes (FAZ). FAZ taxes wage increases very heavily, unless the enterprise shows growth in output or is granted a dispensation. Consequently, Polish enterprise managers operate in an environment of endemic excess demand, constantly shifting regulations, and inconsistent incentives. In this environment it is not surprising that the reform has shown such poor results.

Given such poor performance in the past, the Poles are unlikely to find it easier to implement reform in the future. Poland's Western creditors and membership in the IMF may succeed in pushing the leadership toward more forceful implementation, but in present circumstances, economic reform will probably not loosen constraints on growth or soften the effect of the elimination of Soviet credits.

The Soviets appear to have an ambivalent position concerning economic reform in Eastern Europe. On the one hand, Romanov's speech at the Thirteenth Hungarian Party Congress contained the following statement:

> The Party performs all this work [intensification of production] making creative use of fundamental criteria of socialist economic activity like planned management, the consolidation of socialist ownership, and the priority of the social aims of economic development . . .

Although Romanov has since been relieved of his seat on the Politburo, these remarks probably reflect the preferences of others in the Soviet leadership who feel that central planning and state ownership are the hallmarks of a socialist system. An article in *Pravda* on June 21, 1985 took a hard line on economic reform, claiming that markets, private enterprise, and a smaller role for central planning destabilizes "the foundations of socialist economic management" and also leads to the "violation of social justice."[11]

On the other hand, no strong Soviet opposition to the present Polish economic reforms has been heard, and Hungarian and Bulgarian reforms have been mentioned positively in the Soviet press.[12] Moreover, the June 21 *Pravda* article was followed by an article by O. Bogomolov in *Kommunist*, another authoritative periodical, in which he stressed the need for different economic and social roads to social-

[11]*Pravda*, 21 June 1985, pp. 3,4.

[12]Reisch, 11 August 1983, p. 9; and *Pravda*, 30 March 1985, p. 1.

ism for the various countries.[13] What with the wide-ranging debate over potential changes in the Soviet economic system since the death of Brezhnev, one could believe the climate for economic reform is better than it has been in the past. In any event, opposition to economic reform often appears to come more from domestic sources than from Moscow.[14]

Even if the Soviet leadership views economic reform in Eastern Europe negatively, other Soviet policy concerns may forestall intervention to halt the reforms. The Soviets are primarily concerned with stability in these countries, and, to a lesser degree, reducing the economic burden they impose on the Soviet Union. If the East European leaderships perceive systemic change as the only route to improved economic performance, and improved economic performance as the only safeguard of stability, the Soviets may feel compelled to accept the reforms.

The Traditionalists. Romania and, to a lesser extent, Czechoslovakia have adhered to the Soviet model. In Romania none of the main features of the Soviet model have been tampered with. Enterprise managers continue to be evaluated according to output plan fulfillment. Investment and output decisions continue to be made at the association (centrala) or ministerial level. The exchange rate has little effect on export or import decisions. Relative prices differ from those on world markets. For example, energy prices remain far below world market levels despite IMF pressure for further increases.

Czechoslovakia has clung less tightly to the Soviet model. In 1980 a "Set of Measures," not an economic reform, was introduced to provide better signals and incentives for improving efficiency. These measures include closer links among domestic and foreign trade prices, bonuses for increasing hard currency exports, and enterprise profits. Wages were also to be more tightly linked to productivity. Plan targets continue to be set by the center and emphasize gross targets, although value-added has become a more important indicator. No move has been made toward market prices, and relative prices diverge from those on world markets.[15]

Given their adherence to the Soviet model, it is not surprising that neither country has been able to accelerate factor productivity growth. Increases in output in both countries appear to be predicated on increases in inputs. Surpluses in hard currency trade have been earned by reducing imports and curtailing domestic investment and consumption. Increases in hard currency exports have been won by reducing

[13]Bogomolov, July 1985.

[14]Brus, 1981.

[15]Levcik, 1980, p. 420.

domestic consumption of raw materials, food, and energy, and exporting the surplus.

Past experience is probably a good guide to the future of these two countries. Improvements in the hard currency balance of payments, especially in Romania, imply that current account adjustment will probably not place a binding constraint on growth in the second half of the 1980s unless both governments persist in trying to repay their entire debt. Output increases will probably depend on increases in investment and the transfer of labor from agriculture to industry, not accelerated factor productivity growth. Because Czechoslovakia has reduced investment and can expect little growth in the industrial labor force, economic growth will be slow. Romania has been able to reduce consumption in the past to increase investment and has some reserves of labor in the countryside, so its prospects for growth are somewhat better. If, however, the Ceausescu government persists in attempting to liquidate Romania's hard currency debt without regard to the domestic costs of energy and food shortages, further declines in living standards and falls in output are likely. Neither country appears to be seeking a long term solution to loosening past constraints on growth.

A reduction in Soviet subsidies and credits would have little effect on Romania, but could damage the Czech economy. Romania is not permitted to purchase Soviet oil except with hard goods, so it does not benefit from the preferential terms of trade granted to other members of the Bloc. Czechoslovakia, however, has benefited handsomely from Soviet trade subsidies and has also received large ruble credits in recent years (Tables 2 and 9). Closing its ruble trade deficit could cost the country a few percent of net material product.

The GDR—A CMEA Success Story? In recent years the GDR has shown the best economic performance in the Bloc. It has put its hard currency current account into surplus by rapidly increasing hard currency exports. It has also successfully reduced energy and input use per unit of output. Growth rates have been faster than those of the mid-1970s. It has not achieved these successes by adopting an economic reform along the lines of either the Hungarian or Yugoslav models. It has benefited from large hard currency payments by West Germany (approximately $1 billion annually) for transit privileges to West Berlin, payments for the release of political prisoners, and from an interest-free "swing" trade credit. But West German payments have been fairly constant over time; they fail to explain the dramatic turnaround on East Germany's hard currency trade balance.

East Germany's quick change from trade deficit to surplus in 1981–1982 was achieved by following Romanian policies. Imports were slashed and exports increased with little regard to cost. Some of the

increases in exports in those years can be traced to destocking.[16] East European enterprises have far larger inventories of inputs than Western firms. Consequently, they can often continue production longer following a reduction in imports. In the case of the GDR some stocks of raw materials may actually have been reexported to raise cash. Dr. Jochen Bethkenhagen of the Deutsches Institut fur Wirtschaftsforschung argues that reexports of Middle Eastern oil also played an important role in improving East German liquidity. In the early 1980s East Germany had the highest share (after Bulgaria and Romania) of raw materials and energy in its exports to the OECD in the Bloc. Energy accounted for 30 percent of GDR exports to the OECD in the early 1980s.[17] To the extent that the GDR was able to purchase this oil with exports of manufactures, its trade performance improved, but some of these purchases may have been on credit.

Since the initial destocking, better inventory control, bonuses for reductions in materials and energy usage, and administrative curbs on consumption and investment probably account for the country's continued ability to run hard currency current account surpluses.

The GDR's improved hard currency balance of payments owes little to East German technology. East Germany's reputation for being the technological leader of the Bloc is undeserved in terms of its hard currency export performance. The share of machinery (SITC 7) in East Germany's exports to the OECD actually declined from 15.7 percent in 1975 to 13.0 in 1981, while other members of the Bloc succeeded in increasing the share in their exports.[18] Furthermore, the share of machinery in East Germany's exports to the OECD falls in the same range as other members of the Bloc, except Romania's (which is lower), around 11 to 13.5 percent. East German unit values (a proxy for prices) of machinery exports (SITC 7) to the OECD have been the lowest in the Bloc in recent years. Hungarian unit values are almost double; East German values even fail to exceed Bulgaria's.[19]

Dietz argues that some of East Germany's superior performance in economic growth can be traced to statistical changes. East German enterprises were merged into giant *kombinates* in the late 1970s and early 1980s. Simultaneously, net output replaced gross output as the most important plan target, and central planners stopped disaggregating plans below the *kombinate* level; the *kombinates* disaggregated plans themselves below this level. Central planners also gave the

[16]Vanous, 1983b.

[17]Boot, 1984, p. 14.

[18]Ibid.

[19]Poznanski, n.d., p. 52.

introduction of new products more emphasis. This combination of more new products, greater emphasis on net output, and the concentration of enterprises may have led to more hidden inflation in new product prices, as small modifications are made in products that are then released at higher prices, and enterprises are able to manipulate cost figures to increase reported value-added.

The extent to which these factors have inflated East German growth figures is an open question. Melzer (1985) argues that the changes mentioned above have led to more rapid real economic growth. The emphasis on rewarding managers for reducing the use of materials and energy has led to reductions in per unit use. Melzer also argues that grouping enterprises in *kombinates* and giving *kombinates* the power to disaggregate plan targets among constituent enterprises improves allocative efficiency. *Kombinate* managers can reallocate inputs more efficiently than central planners because they have better access to information and shorter chains of command. Ministries also have better control because on the average they oversee 11 *kombinates* whereas previously they had to supervise tens of firms. These systemic features may permit the East Germans to continue to achieve improvements in efficiency, especially as hard currency balance of payments pressures have eased, permitting more imports of Western machinery and higher levels of investment.

East Germany appears to have weathered closing its trade deficit with the Soviet Union. Ruble trade surpluses may rise as the country pays off its ruble debt, but the resulting economic adjustments will probably be slight. More worrisome are long term prospects for economic growth. As noted above, East Germany's hard currency export performance in machinery and other manufactures has been poor. The country does not have a comparative advantage in raw materials or energy. As long as it depends on raw materials and energy for much of its hard currency export earnings, it will probably be subject to recurring balance of payment crises, and economic growth will lie hostage to supplies of these goods for export.

Investment

Table 8 documents the severity of the investment cutbacks in Eastern Europe over the past several years. 1984 marked the first year in which Bulgaria, Czechoslovakia, Poland, and Romania increased investment. Declines in Hungary and the GDR moderated.

The East European leaderships may perceive increased investment, again, as a means of improving factor productivity and loosening energy supply constraints. After the reductions experienced in recent

years the number of projects with large potential returns has probably increased. Soviet demands for higher quality manufactured goods and more competition in traditional hard currency export markets put pressure on these countries to increase investment by importing and installing new machinery that incorporates more efficient technologies.

Improvements in factor productivity and fuel consumption will have to be juxtaposed against a deterioration in the hard currency balance of payments. 1984 was the first year that the region, with the exception of Poland, felt hard currency balance of payments pressures ease significantly. Deterioration in the next few years would destroy much of the credibility on international financial markets that has been so painfully restored.

Increases in ruble exports will also curb the incipient investment boom. Countries that still run large ruble trade deficits with the Soviets are likely to face demands to pay off ruble debts before embarking on a full-scale investment boom.

Probably the tightest constraint on rapid increases in investment will be consumer demands for higher real incomes. Living standards have fallen or stagnated in most Bloc countries during the past few years. In most cases the populace has peacefully, if complainingly, acquiesced to this state of affairs. If output begins to grow more rapidly, Bloc leaderships, with the exception of Ceausescu, will probably feel compelled to increase incomes almost as fast as investment.

The worrying aspect of another investment boom is that with the exception of Hungary and possibly Poland, none of the countries have implemented new methods by which to choose investment projects nor new instruments with which to keep the boom under control. Although neither Western nor Soviet bankers are likely to finance a boom of the duration of the last, Eastern Europe will probably soon find itself in the middle of another investment cycle.

VII. CONCLUSIONS

Western scholars generally concur that Eastern Europe has benefited from large implicit trade subsidies, subsidized trade credits, and in at least one case hard currency loans from the Soviet Union during the past several years. Although the size of these subsidies is disputed, most scholars concur that they have totaled many billions of dollars. In that case, why have the Soviets acquiesced to such unfavorable terms of trade and why have they permitted CMEA countries to run persistent ruble trade deficits? Another question is why per capita subsidies differ from country to country.

After examining several hypotheses, I conclude that trade subsidies have been granted to ease the transition to higher relative energy prices in the CMEA. The incidence of these subsidies has been determined primarily by factor endowments within the CMEA and Soviet decisions on oil export volumes. Although the Soviets have included political factors in their calculus on oil export volumes, there is little evidence to indicate that the volume of implicit trade subsidies has been used as a policy instrument to extort political concessions. Trade credits appear to have been granted to soften the effect of higher energy prices as well, but the Soviets appear to have used them more often for immediate political objectives, especially to bolster states in political turmoil.

Slow economic growth in the Soviet Union, the very large opportunity costs currently incurred, and the limited effectiveness of these policies for curbing unrest may have contributed to a Soviet reassessment of its present economic relationship with Eastern Europe. Stagnating (and now declining) Soviet petroleum production coupled with falling world market prices of oil have also probably encouraged the Soviets to reassess past policies. A change in these policies appears to have been marked by the 1984 CMEA summit meeting, which concluded with a call for improved Soviet terms of trade, more East European investment in the Soviet Union, and a restructuring of East European economies to better serve the Soviet Union.

The probability that the Soviet Union will be able to achieve these goals is limited. Soviet statements at the CMEA summit may have been more a "wish list" than an operational policy change, for the political costs of forcing hard-pressed East European regimes to increase exports may exceed the economic benefits of reducing Soviet balance of payments loans. Moreover, although the Soviets can coerce

the East Europeans into closing their ruble trade deficits and eventually repaying their ruble loans, they will face determined opposition to increasing investment in the Soviet Union. Improvements in Soviet terms of trade are also unlikely, unless the present system of determining prices in intra-CMEA trade is changed, an improbable eventuality.

If the Soviets force Eastern Europe to close the trade deficits, Eastern Europe will have to increase ruble exports, while economic growth continues to be constrained by declines or limits on imports of Soviet energy, hard currency debt service, small additions to present stocks of capital and labor, and low levels of factor productivity. Of the policy options available to the East European leaderships for accelerating economic growth in the face of Soviet reductions in subsidies, three stand out: (1) diverting trade from the West to the Soviet Union and the rest of the CMEA, (2) reforming the economic systems, and (3) embarking on another investment boom.

None of the three policies offers much promise. Difficulties in obtaining increased imports of intermediate goods from other countries in the CMEA coupled with continued large debt service payments on hard currency loans implies more, not less, East-West trade. Falling world market oil prices will also narrow the difference between the cost of imports of Soviet oil and Middle Eastern imports, making world markets more attractive to the East Europeans. Reform has great potential for improving productivity and export performance, but Bloc leaderships seem incapable or unwilling to implement coherent reforms, except in the case of Hungary. Present hard currency loans levels, the need to increase exports to the Soviet Union, and domestic demand for higher standards of living place sharp limits on Eastern Europe's ability to pursue growth through another investment boom. Slow growth and ad hoc measures to increase East-West trade appear to be the order of the day in the 1980s.

The long run implications of this analysis are continued or increasing political unrest in the Bloc. If living standards continue to stagnate or rise only slowly, popular discontent may increase. The probable response, at least as indicated by current practice in Czechoslovakia and Poland, will be greater reliance on the police. However, continued poor economic performance could provide a push to the Polish and Bulgarian reforms and an impetus for systemic change in Czechoslovakia after the replacement of the current leadership.[1] An expanded private sector and a more demand-oriented state

[1]It is hard to imagine economic reform in the GDR. Comparative economic performance has been good, and the *raison d'être* of a socialist Germany disappears if central planning is replaced with markets. Ceausescu's highly personal rule in Romania makes political predictions for that country very difficult.

and cooperative sector made possible by economic reforms could considerably improve the quality of life in these countries and provide a safety valve for popular discontent.

The Soviet dilemma is unlikely to go away. The Soviets may well succeed in reducing the economic costs of supporting Eastern Europe by pushing these countries to pay their ruble debts. Trade subsidies may also fall as the world market price of oil declines. But the Soviets show no signs of refusing to assist regimes with internal political problems. They will continue to incur large economic costs to preserve political control.

Present Soviet economic problems and their desire to reduce expenditures on Eastern Europe may provide a great deal of leeway in economic policymaking for East European leaders during the coming decade. The Soviets' own supply problems will prevent them from increasing exports to Eastern Europe or insisting on a decline in trade between Eastern Europe and the West. As long as they remain wedded to integration through plans, rather than markets, the increases in trade in intermediate goods needed to foster greater gains from trade in the CMEA are unlikely to be forthcoming, and the East Europeans will need to emphasize trade with the West if they wish to exploit these gains. Moreover, although Soviet leaders appear ambivalent about economic reform in these countries, they are unlikely to reimpose their own model, especially when they are debating potential changes in the Soviet system itself. Thus the East European leaderships have some freedom to maneuver. Whether they take advantage of it is an open question.

Appendix

STATISTICAL TEST OF THE CUSTOMS UNION HYPOTHESIS

To test the customs union hypothesis, I assumed that the CMEA is endowed with three primary factors: capital, labor, and energy. I then regressed per capita subsidies as calculated by Marrese and Vanous (1985) in 1984 dollars on measures of relative factor endowments: capital/labor ratios and the percentage of energy consumption produced domestically. Because much of the increase in per capita "subsidies" in the 1970s was due to increases in differentials between CMEA and world market oil prices, the ratio between these two prices was also included in the equation. These measures were calculated for the CMEA Six (Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, and Romania). The results of the regression are given in Table 6.

Capital labor ratios were calculated by converting measures of productive capital[1] in constant prices[2] into dollars using purchasing power parity exchange rates constructed by Alton et al. (1981). These figures were then divided by total employment figures given in the statistical handbooks of the various countries. The capital stock figures for Romania and Bulgaria are probably biased upward; the exchange rates used are also questionable, but the resulting estimates are probably the best capital stock figures available.

CMEA and world market oil prices converted to rubles were taken from Dietz (1984). The percentages of energy consumption produced domestically were calculated from data in CIA (1979) and Vanous (1983b).

[1]Total capital in the cases of Romania and Bulgaria.

[2]Both Romania and Bulgaria appear to calculate capital stock figures by summing net investment (Alton et al., p. 405). The resulting sum is a muddle, but in periods of low inflation it may be a reasonable approximation of the capital stock.

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